Purchasing healthcare

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Publication date:
2018

Document Version
Publisher's PDF, also known as Version of record

Purchasing healthcare

Beyond getting the financial incentives right

Suzanne Ruwaard

Purchasing healthcare:
Beyond getting the financial incentives right

Proefschrift

ter verkrijging van de graad van doctor
aan Tilburg University
op gezag van de rector magnificus, prof. dr. E.H.L. Aarts,
in het openbaar te verdedigen ten overstaan van een
door het college voor promoties aangewezen commissie
in de aula van de Universiteit op vrijdag 14 September 2018 om 14.00 uur

door

Suzanne Ruwaard,
geboren te Leiden.

Purchasing healthcare: Beyond getting the financial incentives right
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ISBN: 978-94-028-1139-1

Cover design by Suzanne Ruwaard and edited by Lyanne Tonk
Layout and design by Tara Kinneging, persoonlijkproefschrift.nl
Printed by Ipskamp Printing, proefschriften.net

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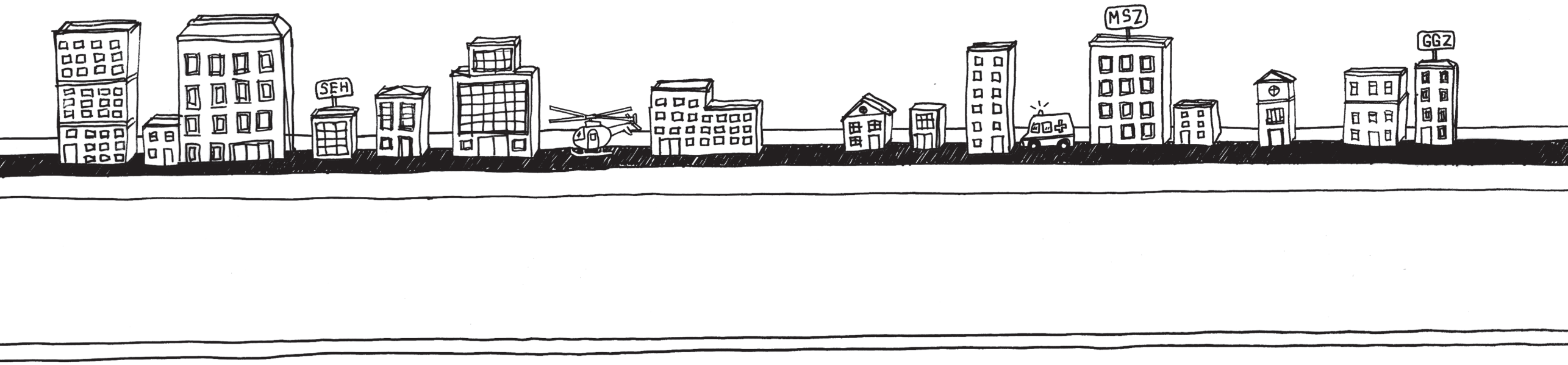
General introduction



1. Introduction

Confronted by persistent expenditure growth in their health care sectors, governments in OECD countries are searching for ways to bend the cost curve. Changing the way we pay for health care is increasingly seen as a promising approach to containing the growing costs while simultaneously improving the quality of the care delivered.

Although theoretically a lot is known about how payment models can create incentives for curbing cost growth and improving quality, little is known about how such payment models can best be designed and implemented in practice. Nor is it clear to governments how they can effectively regulate health care systems in which competitive private parties purchase care. As a result, payers, providers and politicians are increasingly interested in the performance and potentials of health care purchasing schemes that focus at once on cost containment and quality improvement. This thesis explores how those two focuses can be strengthened in health care purchasing within the Dutch health care system.

This general introductory chapter begins with a brief description of the Dutch health care system. Section 3 introduces different types of payment models and their underlying theoretical considerations, and it gives a brief overview of contract innovation in practice. Section 4 describes how patients choose health care providers in the health care provision market, and section 5 describes the research aims and outline of this study.

2. The Dutch health care system at a glance

Following a short overview of the origins of the Dutch health care system, we will describe the current model of regulated competition and examine how the Dutch health care system now performs in terms of affordability, quality and accessibility.

2.1. Origins of the Dutch health care system

First we shall briefly trace some historical trends in the organisation of the Dutch health care system. Comprehensive descriptions of the system can be found in publications by Kroneman and colleagues [1] and Schut and colleagues [2].

The Dutch health care system was founded on the Bismarck model. Health care systems based on the Bismarck model are characterised by private property rights, limited governmental influence, funding based on premiums rather than taxes, and ready accessibility of both primary and secondary care [3]. Other countries like Austria, Belgium, France and Germany also have systems based on the Bismarck model [3], although major differences exist. In the Netherlands, for instance, a patient's general practitioner serves as a gatekeeper to specialist medical and hospital care. On the other

side of the spectrum are health care systems based on the Beveridge model. Beveridge systems are characterised by public property rights, stronger governmental influence, funding based on taxes, and a required GP referral to specialist medical care [3]. Examples of countries in this category are Denmark, Finland, Ireland, Norway and the United Kingdom [3].

From the early 19th century, mutual funds were organised by private parties such as charities or doctors. Dutch governmental attempts to introduce a national insurance programme had persistently failed until the German occupiers introduced a compulsory insurance scheme for employees earning below a certain income level in 1941. Under that scheme, the insured population enjoyed a uniform benefit package that was broader than the former insurance package, and relatives were now also covered. The remainder of the population, consisting of self-employed people and retirees, could take up voluntary insurance in the private market or from the sickness funds.

The Dutch government attempted several times to expand the insurance scheme to a larger share of the population, but without success. Providers resisted expansion of the scheme, fearing loss of income. It was not until 1964 that the government finally succeeded in implementing the Compulsory Health Insurance Act (*Ziekenfondswet* or ZFW). Insurance in sickness funds was compulsory for a large segment of the population below a specified income level [2]. At that point, more than 60 per cent of the Dutch population was insured [2]. Further attempts to unite the sickness funds and voluntary private health insurance provision failed in the 1980s and 1990s [1]. Smaller reforms were introduced instead, and these paved the way for a system of regulated competition, launched in 2006.

2.2. Regulated competition in the Netherlands

When regulated competition was introduced in 2006, the sickness fund system and the voluntary insurance schemes in the private market were replaced by a single mandatory insurance scheme for the entire population. The model of regulated competition relies on market principles to achieve maximum value for consumers and employers. It is based on Alain Enthoven's model of regulated competition [4].

Three interrelated markets were introduced under the new model: the health care provision market, the health insurance market and the health care purchasing market (figure 1). In the health care provision market, health care providers provide care to patients. In the health insurance market, consumers buy insurance products from health care insurers. And in the health care purchasing market, insurers purchase care from health care providers. The government regulates the markets in order to sustain solidarity and guarantee accessibility of care [5].

Ten years after the introduction of managed competition, Van de Ven and colleagues [6] and Van Kleef and colleagues [5] argued in an eight-year evaluation of the system

that the Netherlands still did not satisfy all the preconditions for the functioning of a health care system that is both efficient and affordable. The most pressing issues were room for risk selection, inadequate transparency with respect to the quality of care, inadequate provider payment models and ineffective merger control [5]. Overall, the authors of both studies concluded that progress had been made on almost all preconditions relating to the overall functioning of the managed competition model. Examples included 'consumer information and market transparency', 'free consumer choice of insurer' and 'cross-subsidies without incentives for risk selection' [6].

By and large, considerable attention has been directed towards the functioning of the health care insurance market. Research studies have also focused predominantly on that market, addressing issues such as insurance design (e.g. mandatory and voluntary deductibles, co-payments, no-claim rebates) [7], the avoidance of risk selection (e.g. design of a risk equalisation scheme [5, 8]) and competition in the insurance market [9]. In recent years, the purchasing market has acquired more interest, and research in that area has started to develop as well (see e.g. [10-13]).

Nonetheless, relatively little is known as yet about how the health care purchasing market functions and performs in practice within the Dutch managed competition model. This book therefore focuses largely on the purchasing market. As the functioning of the purchasing market is interrelated with, and supportive of, the performance of the other two markets, we also make a sidestep to the functioning of the health care provision market.

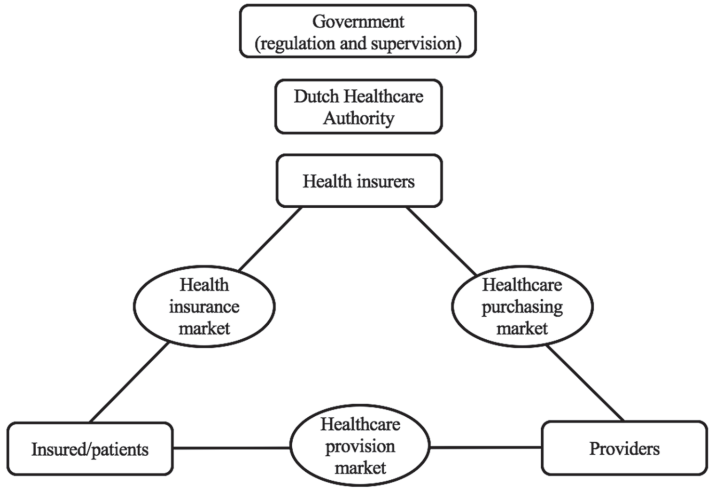


Figure 1. Actors and markets in the Dutch health care system since 2006
Source: Kroneman, M. et al., 2016 [1].

2.3. The performance of the Dutch health care system

Health care systems, including the Dutch system, seek to satisfy several goals simultaneously, namely the accessibility of care, the affordability of care and the quality of care. The *Dutch Health Care Performance Report 2014* provided a comprehensive review of health system performance of the Dutch healthcare system [14]. Several scientific studies have made international comparisons of health care systems, including Davis and colleagues [15], who compared 11 countries with respect to quality, access and efficiency (as well as other dimensions).[1] According to the above studies, the Dutch health care system scores relatively well when it comes to quality and accessibility. It is also amongst the most expensive in the OECD (measured as a share of GDP) [16].

Health care expenditures have been rising in the Netherlands, both in absolute terms and as a percentage of GDP (figure 2) [17]. After the United States, the Netherlands shared second and third place with Switzerland in 2012 in terms of the highest health care expenditure as a share of GDP in the OECD countries (figure 3) [16]. In the period 2000–2013, the average cost growth was about 5.5%, but it started to diminish towards the end of that period [14]. The decline was partly due to economic recession and partly due to policies introduced by government. For example, the Medicine Prices Act (*Wet geneesmiddelenprijzen* or WGP) contributed to a reduction in cost growth for pharmaceuticals [14] by requiring that prices not exceed the average prices across a predefined selection of surrounding countries [18].[2]

The quality of care in the Netherlands ranks high in the OECD; the country is above average on most quality indicators [14]. The Dutch health care system has also helped to enhance the health of the population [1]. Life expectancy has increased by over 7 years since 1950, and that can be attributed in part to health care [19]. The Netherlands does particularly well on quality indicators such as low levels of antibiotics prescribed in primary care and high percentages of hip fracture operations within 48 hours [14]; avoidable hospital admissions are low in comparison with many other Western countries [1]. However, the performance of the Dutch health care system is ranked more moderately in terms of admission rates for heart failure and chronic diabetes as well as on survival ratios for various cancer types (including breast, cervical and colorectal cancer) [14, 20]. With respect to long-term care, the Dutch system is much more comprehensive than those in other countries, especially with regard to elder care. Staff capacity is relatively low, however, and patients report insufficient attention from staff [1]. Despite such criticisms, increased investments in elder care have been at least partially associated with increased life expectancy among the Dutch elderly [21].

1 The 11 countries included were Australia, Canada, France, Germany, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom and United States.
2 This group of countries consists of Belgium, Germany, France and the United Kingdom.

The Dutch health care system performs particularly well in terms of accessibility [14]. Overall, the concentration of providers is such that patients do not need to travel far to see a primary care doctor or to access a hospital. Waiting times have started to decline as from 2008. Status is not linked to substantial differences in accessibility of care in the Netherlands. Rates of health care neglect for financial reasons have remained low, although they have increased somewhat in recent years. That may be attributable to increases in deductibles, to a lower uptake of supplementary insurance or to the economic crisis [14].
In conclusion, the Dutch health care system performs quite well in terms of accessibility and quality of care, but the affordability of care is under threat from rising health care costs.

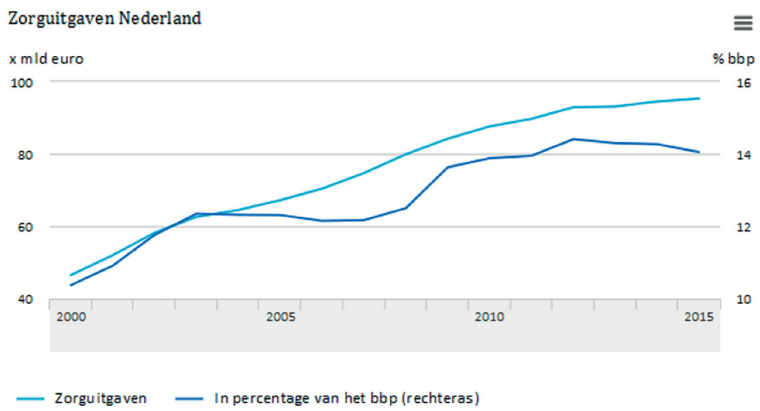


Figure 2. Health care expenditures in the Netherlands, 2000–2015
Source: Statistics Netherlands (CBS), 2016 [17].

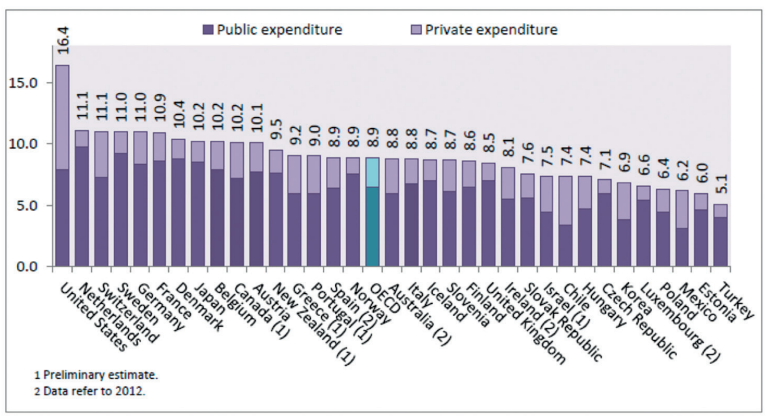


Figure 3. Health spending (excluding investment) as share of GDP in OECD countries, 2013
Source: OECD Health Statistics 2015, 2015 [16].

3. Paying for health care in the health care purchasing market

This section starts with an introduction about different types of payment models. I then discuss some theoretical considerations about the different types of models and provide examples of innovative models that have been implemented in practice.

3.1. Payment model types

We follow Frakt and colleagues [22] in their classification of five different payment models: cost-based reimbursement, fee-for-service (FFS), per-diem payments, per-episode payments and capitation.[3]

Cost-based reimbursement entails payment of providers on the basis of the actual costs the provider incurred. Under *FFS*, providers are paid a set fee for each service delivered. *Per-diem payments* are based on a daily rate per patient. *Per-episode payments* (bundled payments) are reimbursements based on costs for all services for one patient per episode. *Capitation* is a payment for a specific period for all (or a subset of) the health care for one patient. For an overview of the different payment models and their definitions, see box 1.

Box 1. Payment models*

Cost-based reimbursement
Providers are paid on the basis of the actual costs incurred.

Fee-for-service (FFS) reimbursement
Providers are paid a separate fee for every service rendered.

Per-diem reimbursement
Providers are paid one fee per patient per day (covering all the care provided).

Per-episode reimbursement (bundled payment)
Providers are paid one fee for an episode of care for one patient

Capitation reimbursement
A single payment for one patient for a specified time period.

* No single universal type classification of payment models exists, nor are there any single agreed-upon definitions. We have therefore composed our own scheme of payment model types and their respective definitions.

3 Miller and Frakt employ different categorisations of payment models. Whereas Frakt identifies cost-based, fee-for-service, per-diem, per-episode and capitation reimbursement, Miller differentiates fee-for-service payment, episode-of-care payment, comprehensive care payment (condition-adjusted capitation) and traditional capitation.

Currently existing payment models such as capitation, fee-for-service (FFS) and diagnosis-related groups (DRGs)[4] have strong roots in history, but they do not necessarily reflect current policy objectives [23]. For example, FFS may incentivise providers to greater production, but it may also encourage overprovision of care; capitation may help contain cost growth but it may lead to 'stinting' on care [23]. Both such effects are undesirable. Rather than spending more or less money, it would seem that changing the ways we pay for health care – so as to better reflect the policy goals of quality, affordability and accessibility is one way to improve system performance.

3.2. Theoretical considerations

Payment models vary in the allocation of financial risk between payers and providers [22, 24, 25], as illustrated in figure 4 [22]. The differing levels of financial risk under various payment models can be explained by the differing aspects for which a provider is at risk. For example, FFS and capitation shift almost all risk either to the payer (FFS) or to the provider (capitation). Under FFS, providers are at risk for each single service they provide (and the various processes included in that service). To make profits, they must ensure that the cost of the respective service is lower than the fee they receive for the service. Under capitation, a provider is additionally accountable for the number of services per episode of care, the number of episodes per condition and the number of conditions per patient [25], as can be seen in figure 5.

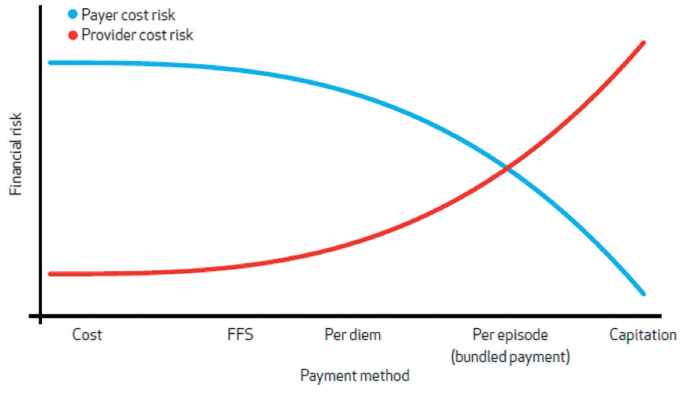


Figure 4. Financial risk of health care for provider and payer, by payment method
Source: Frakt, A.B. et al., 2012 [22]

4 A diagnosis-related group (DRG) is a product including a set of hospital services related to a single diagnosis (DRGs are part of a classification system).

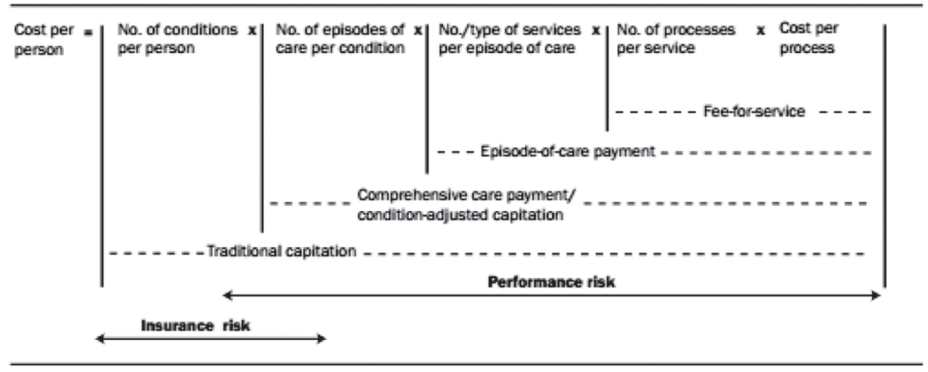


Figure 5. Aspects for which the provider is at risk under different payment models
Source: Miller, R.D., 2009 [25]. Miller did not incorporate per-diem payment in this figure.

By shifting risk to providers, payment models can create incentives for value by holding providers accountable for outcomes, in terms of both the cost and the quality of care to be delivered. In line with the incentives deriving from these payment models, FFS tends to stimulate volume, whereas capitation may lower cost growth but possibly at the expense of the quality of care. Payment models towards the right end of the spectrum increasingly encourage providers to be affordable.

Such payment models may be further fine-tuned by adding other components. For example, bundled payment arrangements may include a *two-sided risk* component, implying that providers share both in savings (should costs lie below a certain target) and in losses (in case costs exceed a certain threshold). *Add-on payments*, such as *pay for performance* (P4P), may be incorporated as well. Add-on payments are made over and above the base payment and are designed to for instance reward providers for enhancements such as coordination or quality [23]. Such adjustments further refine the level of financial risk for the provider.

The payment model and the inclusion of such components thus determine the final allocation of risk between the provider and payer. Risk can then be further subdivided into roughly two types, performance risk and insurance risk [25]. Miller defines *performance risk* as risks that are related to the provider's own share in providing high-quality and efficient care, and *insurance risk* as risks that stem from differences between patients and their respective needs [25]. Performance risks increase the incentives to create value, whereas insurance risks increase a provider's level of financial risk without the provider being able to control it.
Given that providers have a maximum level of risk they can safely take on (depending on factors like size), the optimal allocation is one where insurance risk is minimised, enabling performance risk to be introduced as much as possible.

3.3. Provider–payer contract innovation in practice

3.3.1. Historical experiences with payment reforms

In view of experiences in practice with shifting more risk to providers, we observe that this is not without its hazards. For example, in the period 1980–1990 in the United States, some providers were accepting risk levels under capitation contracts that were too high, possibly giving them incentives to 'stint' on care [26]. Such incentives were strengthened by inadequate risk adjustment arrangements and insufficient insights into quality of the care delivered [23, 26]. One of the lessons learnt from this backlash is that more attention must be put on quality and that some form of risk adjustment is needed to compensate providers. As the cost curve continues to rise, payment models on the right side of the spectrum (figure 4) are again gaining more interest [26], though with caution about excessive risk levels for providers.

3.3.2. Current innovations in payment reforms

Countries are increasingly experimenting with innovative payment models to the right of the spectrum [27-29]. We shall now describe some current initiatives that experiment with bundled payments and global payments, as well as some that experiment with add-on payments. Add-on payments are made alongside a base payment for purposes such as improving the quality of care (in which case they may be called P4P) or improving the coordination of care [23]. Experimentation in OECD countries with population-based payments, bundled payments and add-on payments has helped to enhance the quality of health care, leading in turn to better health outcomes [23, q.v. for an elaborate overview].

Per-episode payment (bundled payment)

Bundled payments may be agreed for specific activities and or (chronic) conditions. In various OECD countries bundles have been adopted for different conditions, including diabetes, chronic obstructive pulmonary disease (COPD), HIV/AIDS, multiple sclerosis, orthopaedic care, maternity care and Parkinson's disease [23]. Bundled payments may enhance care experiences, care effectiveness, cost savings and protocols [23]. However, determining a fee for a bundle of services can be rather complicated and tends to increase administrative burdens [23]. Other problems may also arise from bundled payment arrangements, such as antitrust issues (excessive market power for organised care groups) and restricted provider choice (when care groups work with preferred providers) [30]. Consequently, the implementation process for bundled payment schemes may take several years, as occurred in the PROMETHEUS experiment in the United States [31].

In the Netherlands, bundled payments now exist for several chronic conditions [30]. Experimentation began in 2007 with a bundled payment scheme in diabetes care, and this was converted into a permanent payment model in 2010, together with chronic obstructive pulmonary disease (COPD) and vascular risk management (VRM) [30].

In 2017, a voluntary bundled payment arrangement for pregnancy and childbirth was introduced [32]. Initial results on bundled payments for diabetes show that both the costs and the mortality rates have declined [33]. Improvements have also been observed in the process of care and the transparency of care [30].

Global payments

Global payment models cover the costs of the entire spectrum (or a large share) of health care from multiple providers for a population that is assigned to them. Global payments have been introduced in countries including the United States (e.g. accountable care organizations (ACOs) [23] and the Alternative Quality Contract (AQC) [28, 34-36]) and Germany (Gesundes Kinzigtal) [23, 37]. Overall experiences with global payments have shown that they can help reduce fragmentation in health care delivery, improve outcomes and contain cost growth [23]. Global payment schemes are complex to set up, however, and they increase administrative burdens and require advanced data and IT systems [23].

In the Netherlands, several regional initiatives are now experimenting with population-based payment [38]. In 2013 the health ministry designated nine such initiatives as 'pioneer sites' and they are now being evaluated. Thus far, the sites have reported improved collaboration between stakeholders (including health care providers, insurers, local government and representatives of patients or local residents) [38]. At the current stage, the pioneer sites are working on the design of the payment models and transparency with respect to both quality and cost [38]. So far, the payment models are still limited to shared-savings models for pharmaceuticals and to extensions of existing bundled payment models. Population-based shared-savings models such as the AQC or Gesundes Kinzigtal are not being implemented at this time in the Netherlands.

Add-on payments

Add-on payments can be employed for various purposes, such as improving coordination (e.g. paying physicians to consult about patient files), care efficiency (e.g. prescribing generic drugs), quality of care (e.g. managing chronic diseases) or accessibility of care (e.g. expanded consultation hours) [23]. In 2012, some two thirds of OECD countries were experimenting with P4P add-on payments [23]. P4P may have a positive impact on performance with respect to the process of care. It is less evident, however, what effect P4P might have on health outcomes and the quality of care [23]. Add-ons are less complex to implement than reforms that introduce models like bundled payment or population-based payment. In 2012, the Netherlands adopted add-on payments (in the form of P4P) in primary care, specialist care and hospital care [39].

3.3.3. Transferability of lessons from abroad

Although theoretically a lot is known about the incentives that different payment models create, there is less knowledge about how to best implement such models in

practice and how outcomes will be affected. This is partly because reforms are still relatively scarce and evaluations are mostly of recent date. The full implementation of a payment reform may take several years, and it may take some time for the impact of a reform to be fully observable. The effect of payment reforms on quality is usually difficult to gauge, because data on quality is often inadequate. Moreover, it is usually difficult to attribute quality gain or diminished cost growth directly to the payment reform, as they could also result from other trends, such as overall developments in the surrounding providers. And finally, health is local, and it may be unclear whether the success of one payment reform can be replicated elsewhere (in another country or even in another region of the same country). Consequently, it is not always clear whether international experiences with payment models will be transferable to the Netherlands. Careful analysis of the payment model will be required, as well as an understanding of the characteristics of the health care system and its performance. One of the aims of this thesis is to draw lessons for the Netherlands from experiences abroad.

Changing the ways in which health care providers are reimbursed can create incentives for value in health care. Shifting more risk to providers can encourage them to improve quality and or contain cost growth. However, since such an operation is not without risk, we must find a balance by creating optimal incentives while not exposing providers to excessive risk levels. More and more countries are experimenting with payment models, such as bundled payments and capitation-based payments, which shift more risks to providers. This thesis will explore how the Netherlands can put payment reforms to use in creating incentives for quality while curbing the growth of health care expenditure.

4. Choosing a health care provider in the health care provision market

Thus far we have focused on the health care purchasing market. For effective functioning of the health care system, it is also important that patients make the right choices. In the health care provision market, patients choose their health care providers, and it is important that they are sensitive to quality differences between providers. This should translate into an effective functioning of the purchasing market, whereby payers will reward high-quality providers.

In addition to quality, other factors such as distance from home, a patient's insurance policy, and referrals and recommendations from other health professionals may also influence a patient's choice of providers [40]. In the international literature, several papers have investigated how patients make trade-offs in choosing providers or how factors such as quality may affect provider volume (see for example [40-48]). Overall, quality tends to play a minor or insignificant role. Some studies have found the effect of quality on hospital choice to be non-linear; more specifically, poor reported quality may reduce hospital volume, while high quality does not necessarily boost it [49-51].

The impact of quality on provider choice has been investigated in several Dutch studies as well. Varkevisser and colleagues (2012), for example, investigated how overall hospital reputation and cardiology reputation affected hospital demand [52]. They found that a decrease of one percentage point in readmission rates was associated with a 12 per cent increase in hospital volume. Patients also responded to overall hospital reputation [52]. Furthermore, Varkevisser and colleagues (2007) explored the effects of patient decisions to bypass nearby hospitals when seeking orthopaedic care and neurosurgery [53]. One finding was that these two types of treatment differed in the trade-offs patients made between distance and waiting times (an aspect of quality), with neurosurgery patients more likely than orthopaedic patients to choose the nearest hospital if waiting times were favourable [53]. Beukers and colleagues (2014) explored the effects of provider choice for hip replacement surgery in 2008–2010 in an analysis that included several patient and hospital characteristics. They found that quality and waiting times played significant roles in hospital choice, but that travel time appeared to be the most important indicator for patient choice. Chapter 6 of this thesis will explore how Dutch patients choose providers for cataract treatment.

5. Research aims and thesis outline

In the foregoing sections we have highlighted the possible significance of innovative payment models (section 3) and patients' choice of providers (section 4) for the performance of the Dutch health care system (section 2). We also pointed to the gap in the literature with regard to research on health care purchasing markets. This thesis hopes to fill that gap. It explores provider–payer contract innovation, whose aim is to improve quality and contain cost growth. In the chapters below, we study the incentives stemming from payment models and how these may contribute to quality improvement and cost containment in the Dutch health care market. This aim unfolds into six research questions related to the health care purchasing and provision markets.

Research questions related to the health care purchasing market

1. What are the key elements of current contracting practice for hospital-based care in the Netherlands? (chapter 2)
2. What elements would an optimal provider–payer contracting strategy have? Balancing customisation and transaction costs in contracting care (chapter 3)
3. What elements are involved in the purchasing and contracting process for specialist medical care? (chapter 4)
4. What is the role of health insurers in a managed competition model? (chapter 4)
5. What can we learn from provider–payer contracting experiences abroad? (chapter 5)

Research question related to the health care provision market

6. To what extent do patients take quality into consideration in choosing health care providers? (chapter 6)

Chapter 2 explores current contracting practice for medical specialist care in the Netherlands. We build a theoretical framework based on economic contract theory (principal–agent theory, transaction cost theory and the property rights approach) and then use it to analyse provider–payer contracts for hospital-based specialist medical care in 2012. *Chapter 3* explores trade-offs between transaction costs and provider-tailored contract design. This is done by analysing the payers' contracting strategies and the provider–payer contracts concluded for behavioural health. *Chapter 4* investigates the process of contracting medical specialist care. This is done based on interviews with Dutch hospitals and insurers. *Chapter 5* explores what the Netherlands can learn from experiences with payment reforms abroad. We analyse the Alternative Quality Contract (AQC) developed by the US health insurance company Blue Cross Blue Shield of Massachusetts, identifying the AQC's key drivers and drawing transferable lessons for the implementation of a similar payment reform elsewhere. *Chapter 6* investigates the degree to which Dutch patients take hospital quality into account when choosing a hospital for cataract treatment. Chapter 7 provides a general discussion and conclusion of the thesis.

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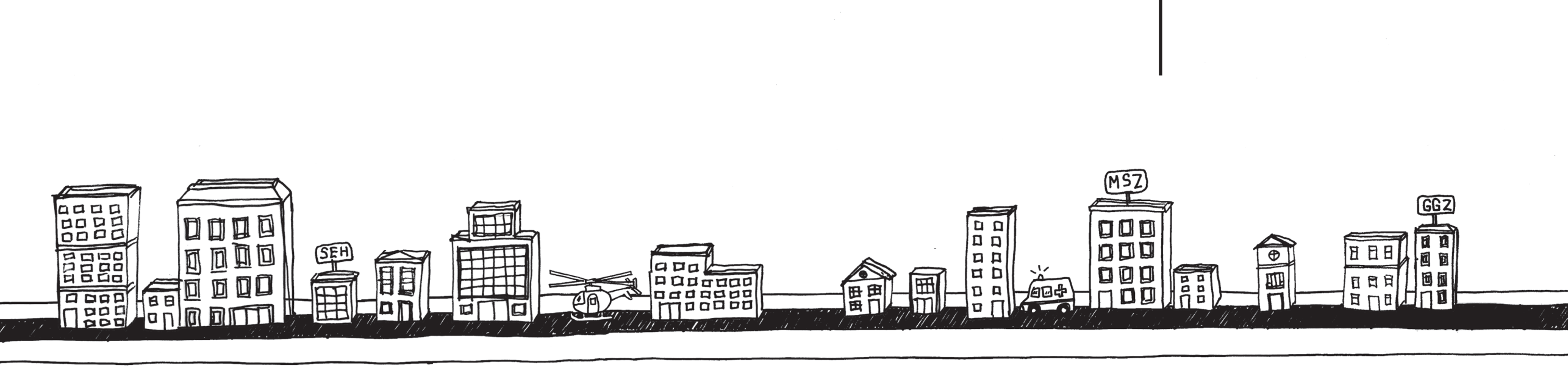
2

How Dutch insurance companies purchase medical specialist care in hospitals: An analysis of contracts between hospitals and health insurers

The chapter is published as: Ruwaard S., Douven R., Struijs J., Polder J. Hoe kopen zorgverzekeraars in bij ziekenhuizen? Een analyse van de contracten tussen verzekeraars en ziekenhuizen. TPEdigitaal 8(2) 98-117



Abstract

In 2006, a new Health Insurance Act was introduced in the Netherlands. Health insurance companies began negotiating with the providers of specialist medical services about fees and about the volume and quality of care. This article reviews the contracts concluded between Dutch insurance companies and hospitals for the provision of outpatient and inpatient specialist medical care in 2012. The resulting information can serve as baseline data for studying how such contract negotiations have since evolved. We analysed the contracts as systematically and comprehensively as possible on the basis of economic contract theory. Results showed that uncertainty and market complexity were major factors governing the ultimate content of the contracts. Virtually all of the contracts were of short duration, were incomplete and allowed for renegotiations during the term of validity. We found that health care quality played a limited role in the contracts for 2012. More emphasis on quality will be needed if regulated competition is to successfully promote the government-defined system goals of quality, accessibility and affordability of health care.

1. Introduction

In 2006, a reformed Health Insurance Act (ZVW) took effect in the Netherlands. It gave a stronger role to managed competition in the Dutch health care system. Managed competition was said to promote quality, accessibility and affordability in health care. Consumers would gain more freedom of choice, whilst also bearing more responsibility with regard to their health care. Health insurance organizations were no longer to serve as mere funders of health care, but were assigned a crucial directive role. They were to perform that role by negotiating with providers in the health care market about the fees, the volume and the quality of health services, including the specialist medical care provided in hospital settings. The assumption underlying the government-promoted model of regulated competition is that insurance companies will purchase services from providers on a cost-effective basis – that is, that they will obtain quality services at the lowest possible price.

The purchasing of such services takes place in a changing context, in which government and stakeholders in the health care domain are still seeking the best ways to structure and perform their roles and responsibilities. Health care purchasing by insurance companies is still in a rather early stage. This article is an incipient attempt, based on the present state of knowledge, to obtain accurate, cohesive insights into the contracts between health insurance companies and hospitals for the provision of outpatient and inpatient medical specialist care. Important issues in the background are whether cost-effective health care purchasing is being sufficiently achieved and whether the contracting parties have managed to find their appropriate roles.

This article analyses the contracts concluded between Dutch health insurance companies and hospitals for the year 2012. It is intended as a kind of baseline assessment, to which subsequent developments, or other purchasing approaches like the Alternative Quality Contracts used in the United States [1], can be compared at a later stage. We reviewed several hundred contacts signed for hospital-based specialist care in 2012. The contracts were made available to us by the Dutch Healthcare Authority (NZa), which obtained them from the large insurance organizations Achmea, VGZ, CZ, Menzis and Multizorg. Using insights from economic contract theory, we analyze the health care contracts as thoroughly and systematically as possible. None of the data we report here is traceable to individual insurers or hospitals.

Our article is structured as follows. Section 2 provides a brief description of the purchasing market for hospital-based specialist care in the Netherlands and recent developments in that market. Section 3 introduces the key factors which, according to the economic literature, may influence contract characteristics. Section 4 examines the identified characteristics of contracts between the insurance companies and hospitals for 2012. In the final sections we discuss the findings and formulate some conclusions.

2. The purchasing of hospital-based specialist care

This section describes how insurance companies purchase hospital-based specialist care. It explores the roles of the various players that are involved in or exert influence on the purchasing process, and thereby on the content of the contracts. This is followed by a brief account of recent developments in the Dutch health care purchasing market.

Hospital-based care in the Netherlands has a history of government imposed global budgets for each individual hospital. Until 2006, annual budgets were imposed on hospitals, determined for each hospital by the Dutch Healthcare Authority. In the year 2012, hospital-based care found itself in a transitional phase, in which both *budget-based* and *value-based* funding models were employed [2]. Since the Health Insurance Act came into effect in 2006, hospital-based specialist care has been distinguished into an A-segment and a B-segment. In 2012, the A-segment encompassed about 30% of such care, for which maximum fees applied, determined annually by the Dutch Healthcare Authority. The B-segment consists predominantly of elective, non-emergency care; it comprised approximately 70% of the hospital-based specialist care delivered in 2012. Payments for services in the B-segment are negotiated between health insurers and hospital managements. The B-segment had been gradually expanded from 10% in 2005, to 20% in 2008, to 34% in 2009 and to 70% in 2012 [2, 3].

Although the hospital managements negotiate with the insurers and bear overall responsibility for the integrated care that is delivered, a hospital's medical specialists ultimately decide what care they will provide. Specialists working in independent practices bill the insurance company directly. Working relationships between hospitals and their specialists are set out in documents such as the Model Access Contract, or MTO [4], which ensure specialists the right to make use of hospital assets such as equipment and operating theatres.

2.1. Roles of the parties involved in the purchasing process

Before examining the contracts and their characteristics in more detail, we shall first describe the major parties in the purchasing process and their roles in the purchasing of hospital-based specialist medical care.

Ministry of Health, Welfare and Sport.
The Dutch health ministry (VWS) is charged with safeguarding the three 'system goals' for health care: quality, accessibility and affordability. The ministry is to ensure that health insurance companies and hospitals are able to perform their roles in the purchasing process, and it is to regulate that process if necessary. It has a range of measures available to provide incentives and to influence the balance of power between hospitals and insurers. The Dutch Healthcare Authority (NZa) has an important role in implementing ministerial policy. Available macro-level mechanisms are administrative

outline agreements (Dutch abbreviations; BHAs) between government, insurers and providers and macro-management instruments (Dutch abbreviations; MBIs) to deal with cost overruns. Micro-level mechanisms include the elements of a transparency-oriented insurance claims system (known as DOT) for bundled episodes of specialist care, which show great similarity with DRGs. We return to these in section 2.2. These examples show how the negotiation outcomes between insurance companies and hospitals are partly governed by the role that government plays in the background.

Hospitals.
The primary aim of a hospital is to deliver quality medical care at reasonable cost. Good-quality care may help hospitals to attract new patients. It may also strengthen their negotiating positions vis-à-vis insurance companies. This aspect of the purchasing process is of growing importance, because hospitals are now subject to greater financial risks as an effect of the expanding B-segment, which makes their revenues increasingly dependent on performance. The introduction of a minimum number of procedures in hospitals has further mounted the pressure on them; it has led to increasing market concentration, as seen in a tendency to hospital mergers, of which seven occurred in 2012 [5].

An additional issue during negotiations between hospitals and insurance companies may be differential interests of hospital managements and their medical specialists. Managements try to limit the total costs, whereas the specialists in independent practice have financial motives to deliver more production [6]. Such encouragements have been weakened, however, by a series of policy guidelines since 2012 setting out a fee control model for medical specialists in independent practice (e.g. [7]).

Health insurance companies.
The aim of health insurance companies is to promote the interests of their policyholders in matters of health care. The website of the Menzis insurance company expresses this as follows: 'Our goal is to provide quality health care and to maintain a healthy financial status.' Other companies use similar wordings. By ensuring the delivery of quality care at low cost, a company can hold onto its current policyholders and try to attract new ones. The stakes are high for health insurers. In the current health care system, they have been assigned the role of purchasing care more cost-effectively. They can apply pressure by declining to engage services from certain providers, thereby containing costs and enhancing quality [8].

Policyholders/patients.
Customers take out health insurance policies with insurance companies. They may choose between two types of reimbursement policies, namely a 'restitutiepolis' or a 'naturapolis'. A restitutiepolis allows patients to contact freely their own health care providers, whose services are then covered whether or not they have been previously

contracted by the insurer. Under a naturapolis, the health insurance company is responsible for the care provided to the patient. They may contractually engage preferred providers. If policyholders opt to obtain services from non-preferred providers, they must pay part of the cost themselves. The assumption is that insurers will select predominantly cost-effective, good-quality hospitals as preferred providers. This type of competition can function well if the patients, too, have the conscious intention of engaging high-quality health care providers.

2.2. Recent developments

The enactment of the 2006 Health Insurance Act marked the starting point of health care purchasing by Dutch insurance companies. Since that time, a whole series of further changes have affected the market parties and the contracts they sign. In addition to the expansion of the B-segment as traced above, there was the transition in 2012 from the DBC (diagnosis-treatment combinations) insurance claims system to the new DOT (DBCs on its way to transparency) insurance claims system. The switch to a modified claims system could potentially trigger shifts in hospital revenues and insurance company claims costs. Those systemic risks were mitigated in the years 2012 and 2013 by the calculation of a 'transition balance', the discrepancy in revenues between a hypothetical budget calculated according to the previous system (referred to as the 'shadow budget') and the actual revenues under the DOT system. Each hospital then settled the disparity with the Healthcare Insurance Fund at a rate of 95% for 2012 and 70% for 2013 [9]. The changeover to the comprehensive DOT fee structure for hospital-based specialist medical care was completed by 2015 [10], after which a single bundled fee applied for each predefined episode of care.

An additional change took place in 2012 when a new policy option known as macro budget instruments (MBIs) was introduced as a measure to help keep costs within the Health Care Budgetary Framework (BKZ), established by the government each year. Although budget-based funding is no longer practised, authorities may now intervene nonetheless if health care expenditures overshoot the politically desired levels as set out in the BKZ. In such cases, all hospitals are subject to a blanket ('generic') funding cut [11]. At this writing, no macro-management instruments had yet been applied.

Also in 2012, the fee control model for specialists in independent practice was introduced [7], imposing on health care institutions a yearly 'macro budget' containing a cost ceiling for insurance claims for the fees of independent specialists working there. Institutions exceeding the BKZ are to reimburse a prorated amount to the Healthcare Insurance Fund.

A final change affecting health care purchasing by hospitals in recent years involves quality criteria and volume standards that have been developed by various specialist disciplines at the request of the Health Care Inspectorate (IGZ). These necessitate the

creation of regional arrangements between hospitals about which procedures will be delivered by which hospitals. This results in shifts in the market concentrations of hospital services [12].

Health insurance companies have been subject to a host of recent changes as well. They now bear additional risks after the phase-out of a retrospective risk equalisation mechanism. Companies now receive only prospective compensation prior to each new insurance year, calculated on the basis of the risk profiles of their policyholders; the previous post-hoc cost settlement with the Healthcare Insurance Fund has been discontinued. This strongly increases the insurers' interests in cost-effective health care purchasing in comparison with the period shortly after adoption of the Health Insurance Act.

The Dutch health minister had earlier concluded the 2012–2015 BHA with all health care providers and insurance companies to ensure joint efforts to control cost trends [13]. It included provisions to limit the overall cost increment to 2.5% in 2012 (excluding wage and price adjustments). In a more recent adaptation, the parties committed themselves to expenditure growth limits of 1.5% for 2014 and 1% for subsequent years [14].

3. A brief explanation of economic contract theories

In this section we outline economic contract theory and how it can be applied in the empirical analysis of contracts. We use contract theory to highlight essential factors that influence the ultimate content of contracts and we describe the contract characteristics generally deriving from those factors. We then investigate whether those characteristics were identifiable in the contracts between Dutch health insurance companies and hospitals for the year 2012. That should produce the first systematic picture of this element of the health care purchasing market in the Netherlands.

In the economic literature, a contract is defined as an agreement between two parties characterised by a joint advance commitment to the performance of specified actions' [15]. The three foremost contract theories are principal-agent theory, transaction costs theory and the property rights approach [16].

Principal-agent theory describes contracts under which an implementing party (the agent) is to perform a task for a commissioning party (the principal). Since the aims of the two parties are not necessarily congruent, performance monitoring and performance rewards are potential means of ensuring that the contract objectives and the agent's behaviour remain compatible with those of the principal. *Transaction costs theory* assumes that the parties to a contract will choose an organisational form (free-market, a hybrid

form or vertical integration) on the basis of the lowest transaction costs; transaction costs are all the costs incurred to enable the transaction to take place. The *property rights approach* emphasises the allocation of rights amongst the contract parties; the way that those rights are allocated influences the behaviours of the parties, and hence the outcomes and the distribution of those outcomes.

Scant empirical literature has been published about how contract theories can be applied to contracts in practice. As a literature review by Smith and King (2009)[17] has shown, many available reports are limited to a research question tested using one of the theories. A notable cause of the scarcity of research lies in the confidential nature of contracts. Often researchers are unable to gain access to private contracts [17, 18], including private contracts between insurance companies and hospitals. Some fragmentary information is available involving contracts of insurers such as the British National Health Service NHS [19] and about the Alternative Quality Contracts (AQCs) of Blue Cross Blue Shield in the United States [1].

To document the insurer-hospital contracts as thoroughly as possible, we need to engage all three of the economic contract theories in the analysis. Though our description above shows a degree of overlap between the theories, there are also significant distinctions deriving from their differing focuses. Figure 1 gives a schematic view of various complementary contract characteristics that may be derived using the theories. We take those contract characteristics as the basis for our analysis of health care purchasing contracts.

The outcomes of contract negotiations between hospitals and health insurance companies depend on a variety of factors. We have distinguished these factors into four categories (figure 1, column 2): structure of the market and (more specific for our purposes) the health care purchasing market; characteristics of the health care services that are the subject of the contract; characteristics of the contracting parties; and the behaviour of those parties.

Figure 1. Schematic representation of three economic contract theories, contract characteristics and influencing factors

Theory	Factors influencing contract characteristics	Contract characteristics
Principal-agent theory **Transaction costs theory** **Property rights approach**	**Purchasing market structure:** Numbers of potential business partners Information asymmetry **Health care characteristics:** Uncertainty Specific product characteristics **Characteristics of contracting parties:** Bounded rationality Risk preferences **Behaviour of contracting parties:** Professional conduct versus potential for opportunistic behaviour	**Allocation of property rights:** Property rights **Contract duration:** Duration in years **Incentive alignment:** Provisions for reducing undesired behaviour and rewarding performance **Degree of contract completeness:** Distribution of financial and clinical accountability **Risk allocation:** Variants contingent on payment method **Protective measures:** Monitoring, dispute resolution, penalties, termination clauses

3.1. Structure of the Dutch health care purchasing market

Number of potential business partners.

The Netherlands has a relatively small number of companies providing health care insurance. Four large establishments (Achmea, VGZ, Menzis and CZ) jointly hold 90% of the market [20]. The collaborative organisation Multizorg purchases health care on behalf of a number of smaller insurance companies. Despite regional differences in scale of influence, the largest four companies thus have a large market share in every hospital.

The market for hospital-based care is less concentrated, with 84 general hospitals, 8 teaching hospitals and 59 specialized single issue hospitals (e.g. hospital focusing on total hip total knee replacement) in 2011 [20]; the latter provides specialist care to specific types of patients. Health insurers may also purchase care from independent treatment centres known as ZBCs [20], clinics that engage two or more medical specialists. In October 2012, 282 independent treatment centres were holding contracts with at least one insurance company [2]. Because they do not perform all treatment procedures, they cannot automatically be regarded as equivalent to hospitals. All in all, each health insurance company may conclude contracts with large numbers of health care providers, whereas hospitals are dependent on a small number of health insurance organisations.

Information asymmetry.
Information asymmetry exists if one of the stakeholding parties has more or superior information available relative to other parties. Between patients and specialists, for example, there is significant information asymmetry; given the more specialised knowledge of the specialists, these are often more capable than patients or their health insurers of determining the appropriate treatment. Between insurance companies and specialists, information asymmetry also exists with regard to the quality of the health care provided. A possible means of reducing that asymmetry is the monitoring of performance [21]. A company may therefore have provisions included in a contract that require hospitals to report data based on quality indicators. Performance that is not directly measurable may be quantified using a proxy indicator that is strongly correlated with that performance [22, 23]. A possible proxy indicator would be the number of sessions per patient with a specified medical condition; if that number is higher at one hospital than in comparable hospitals, that might prompt an insurer to investigate further. At the same time, a minimum number of sessions might also serve as an indicator for the more difficult-to-measure quality.

3.2. Health care characteristics

Uncertainty.
Uncertainty about the volume of health care plays a major role in contract negotiation [24]. The amount of care needed in a specific population cannot be predicted without a wide margin of error. In addition to uncertainty about medical technology and the speed at which new developments will be introduced, the decision-making behaviour of patients is also a significant factor. Recent and future policy changes are also considerable sources of uncertainty; in other words, the political context is an inherent source of uncertainty that is difficult to allow for in advance. At this writing, for instance, there is a lack of clarity as to precisely how the new system of single bundled fees will function after it is fully implemented [6]. An unsettled policy environment also makes performance more difficult to assess. In an urgent letter to the health ministry in late 2012, the Royal Netherlands Institute of Chartered Accountants (NBA) warned that accountants might refuse to approve the annual accounts of Dutch hospitals because the whole string of modifications to the system had produced so many uncertainties [25]. A further significant source of uncertainty lies in technological developments that may influence the demand for care and the associated costs; new treatment procedures or improved alternatives may become available at any time. By and large, uncertainty results in less complete contracts and shorter contract durations.

Specific product characteristics.
Transaction costs theory distinguishes a number of product characteristics: complexity, quantity of products and transaction-specific investments. The product 'hospital-based specialist medical care' is highly complex, because hospitals provide broad spectrums

of health care whose quality is often difficult to assess; many treatments are also patient-specific.

For complex health care products, then, provisions concerning quality or performance are often included in contracts [26]. Contract negotiations may be conducted at the product level. At the time the Health Insurance Act took effect in 2006, the number of health care products was very high: about 30,000 DBCs existed. Since 2012 these have been brought back to approximately 4,400 DOTs, but the system still encompasses a large number of products.

Transaction-specific investments may play a part in contracts. Those are investments that lose some of their value if they are not used or are used for some other purpose [27]. An example is the recently developed cancer treatment called proton therapy. For a hospital, acquiring a proton beam machine entails an investment of some €100 million [28]. Should health insurance companies decide to no longer contract cancer treatments at that hospital, and if the hospital is unable to sell the equipment on to a new buyer (such as another treatment provider that does have contracts for that service), then the hospital's investment will lose some or all of its value. In such cases, long-term contracts may offer a solution, providing financial certainty to the hospital.

3.3. Characteristics of the contracting parties

Bounded rationality.
The ability of contracting parties to make rational decisions is limited. For one thing, the information needed to fathom all the potential alternatives and consequences is often not available. Second, human beings are limited in their capacity to weigh up the information that they do have. Moreover, the time available for making decisions is often limited. As a consequence of bounded rationality, contracts are incomplete by definition, because contracts cannot contain full accounts of all rights and obligations of both parties in all possible scenarios.

Risk preferences.
Contract parties may differ in the preferences they have for risks. A contracting party is risk-neutral if contract outcomes are not governed by future risks. Risk-seeking or risk-avoiding behaviour occurs when a party allows uncertain outcomes to carry more weight, or less weight, in its decisions. Under the current system, health insurance companies and hospitals are gradually taking on more risks than they previously did. In contracts, parties may try to hedge their risks or shift them to the other party. If an insurer and a hospital agree on a lump-sum payment for the health care to be delivered, that affords the insurance company certainty, whilst the hospital must assume the resulting loss or profit. In such a case, the hospital has a maximum incentive to remain within the predetermined lump-sum. It is unknown what form an optimal contract would take. One must often seek a balance between ensuring certainty and providing the right incentives.

3.4. Behavior of the contracting parties

Professional conduct versus potential for opportunistic behavior.

Health insurance companies, hospital managements and medical specialists have many rights and obligations that derive from their respective functions or professions. Yet there is always room for discretionary decisions, and this can open opportunities to act opportunistically (whether purposely or not). That may lead to undesired consequences. A health care provider may deliver more care than necessary, or run waiting lists, or choose more profitable patients or DOTs (upcoding), or may economize at the expense of quality [29]. The potential for opportunistic behavior may give health insurers reason to insert provisions in hospital contracts that limit the maneuvering room that hospitals and doctors have within the contracts, with the aim of minimizing such behaviors and their unwanted consequences.

4. Characteristics of the health care contracts

In drafting their contracts, insurance companies and hospitals take six contract characteristics into consideration (figure 1, right-hand column). (1) *Allocation of property rights.* Various types of property rights exist (including rights to make use of specified resources and rights to claim residual profits); those rights may be distributed between the contracting parties. (2) *Contract duration,* the period extending from a contract's start date to its intended end date. (3) *Incentive alignment.* Provisions may be included that encourage desired behaviour and inhibit inappropriate behaviour; examples are value-based purchasing and performance bonuses. (4) *Degree of contract completeness,* the extent to which the rights and obligations of each party are specified for all contingencies. (5) *Risk allocation,* the distribution of (financial) risk between the contracting parties. (6) *Protective measures.* Contracting parties must have the assurance that agreements will be fulfilled; they therefore include protective measures such as performance monitoring, dispute resolution, penalties and termination clauses in contracts. We shall now further examine the contract characteristics we identified in the contracts between Dutch health insurers and hospitals for 2012.

4.1. Allocation of property rights

The relationships of governance in a hospital are legally defined. Those relationships thus constitute the baseline governance structure under which a contract between a hospital and an insurance company is signed. It sometimes happens that the governance relationships change, as when a merger occurs or when arrangements are modified between management and medical specialists working in the hospital. Some insurance companies therefore included conditions enabling contract dissolution in the event of altered governance relations within a hospital. Two insurers stipulated that they had the right to immediate contract termination if 'the relations of governance in the hospital become altered through the transfer of shares, conversion, demerger,

merger, changes to the governing board or changes in the composition or powers of a supervisory board'. One insurer had agreed with some hospitals that hospital-employed specialists were prohibited from switching to independent practice unless authorized by the insurer.

4.2. Contract duration

The duration of most contracts we studied was one year. Three insurance companies worked exclusively with one-year contracts, and one had both one- and two-year contracts. One insurer employed supplementary 'framework agreements for specialist medical care', under which subcontracts were signed for a five-year time span; the framework agreements included provisions for quality control and information sharing for a limited number of services over the five-year period.

Virtually all contracts specified similar conditions for possible early termination, including mutual agreement, bankruptcy, suspension of payments, or complete or partial transfer of the health care establishment to new ownership.

4.3. (Ex ante) incentive alignment

Provisions were made in all contracts regarding the costs, volume and quality of care. Some insurers granted performance rewards in the form of selective contracting or incremental per-patient reimbursements.

Costs

Insurers and hospitals negotiate about the fees for DOT care products. The data we had available omitted the specific fee or volume provisions per DBC agreed with hospitals by insurers. Roughly, though, we could identify three different reimbursement methods employed in the contracts: lump-sum payments, global hospital ceilings and fee schedules. In the *lump-sum approach*, hospitals receive a predetermined lump-sum payment for specified types of care, irrespective of output. With *global hospital ceilings*, a hospital could submit claims to the insurer until the global hospital ceiling is reached. The Dutch health ministry he amounts of the contracted lump-sums or global hospital ceilings are stated in the contracts. When contracts contained *fee schedules*, the hospitals were reimbursed for every completed episode of care according to the fees set in the schedules.

Almost all contracts employed either lump-sum payments or global hospital ceilings. Two insurance companies worked with ceiling provisions exclusively; two others had ceiling provisions with some hospitals and lump-sum provisions with others. One company worked with all three payment methods, although the fee schedules were used only for a limited number of hospitals in which the company had a small market share. Two companies referred in their contracts explicitly to the spending growth limits set by the current Administrative Outline Agreement.

Virtually all contracts stated that the health care must not be unnecessarily costly or complex. Four companies included provisions about prescribing drugs; one obligation in three of these was prescribing by generic names, save in cases of medical necessity. Two companies required that hospitals prescribe the lowest-priced alternatives if different types were available.

Volume
The payment methods employed by the insurance companies impacted the volume of care as well as the costs. Some insurers tried to minimise the risks of undertreatment and overtreatment by including additional provisions in the contracts. To discourage undertreatment, many insurers prohibited hospitals from declining patients or discontinuing their treatment except for well-grounded reasons. Some contracts required hospitals to continue care delivery even after a global hospital ceiling or a lump-sum was exceeded. One insurer also required hospitals to continue dispensing medicines.

Provisions to discourage overtreatment were also included. Virtually all contracts stated that hospital-based specialist care would be reimbursed exclusively for patients with GP or other referrals, except in emergencies. Three insurance companies explicitly required prior authorisation by the insurer for treatment episodes from a restricted list. The restricted list is a list of treatments that require prior authorization. One insurer required authorisation for specific interventions, such as upper eyelid or prominent ear corrections. Some contract criteria were highly detailed. One criterion for upper eyelid corrections, for instance, was that 'the skin redundancy on the upper eyelids must be so substantial that the skin drapes over a minimum of half of the eyelashes on straight ahead gaze with upright head orientation and/or slackness or paralysis of the levator palpebrae muscle'. There was one insurance company that stipulated a maximum reimbursable volume for certain services.

Quality
General provisions on quality of care were contained in all contracts. The care was to be consistent with the state of the art in medical research and practice. It was to conform to the standards of care, protocols and guidelines most recently in effect. Some more specific requirements were for implementation of safety management systems and for accreditations conferred by recognised certification or accreditation bodies for 2012. General provisions were included about waiting times, such as that care was to be delivered within the maximum times specified in the legally determined Treek standards. For some specific services, provisions were included that referred to minimum quality requirements set by professional organisations such as the Association of Surgeons of the Netherlands (NVvH). In some cases, an insurance company had formulated its own quality criteria or improvement provisions.

Performance rewards
Various types of performance rewards may exist, including selective contracting and bonuses for each treatment episode in which a hospital fulfils specified standards. In 2012, one insurance company included bonuses for hospitals meeting quality criteria for certain types of services. Three companies engaged in selective contracting by purchasing only specified types of services, or no services at all, from certain hospitals. Most insurers had contracts with practically all Dutch hospitals, but not always for all services.

The criteria applied in selective contracting or incremental per-patient reimbursements corresponded mainly to the guidelines (minimum quality requirements) already established by the professional associations, and hence already known to hospitals. In some cases, an insurer had defined its own quality indicators. For some services, explicit improvement provisions were also included in contracts.

4.4. Degree of contract completeness
The contracts we studied were incomplete in terms of performance requirements and the allocation of financial risk. Four of the five insurance companies provided room for fee adaptations during the term of a contract; the fifth company stated that fees would be reimbursed until a specified ceiling was reached. In the event that volumes were lower than expected, or exceeded contracted ceilings or global-sum payments, per-episode fees could be adjusted up or down to make total claims match the intended level.

An additional provision included by three insurers allowed for payment adjustments in the event that changes were made to fixed or maximum fees in the categories of care whose pricing was controlled by the Dutch Healthcare Authority (NZa). In some cases, contracts also provided for reassessment of lump-sum payments or global hospital ceilings. Two insurers reserved the right to raise or lower ceilings should their numbers of policyholders diverge from the numbers on which calculations had been based; another left room for budget renegotiation should a hospital experience a 'substantial' increase in volume that was beyond its reasonable risk. Other sources of incompleteness in contracts involved performance. Although provisions about quality were included, none of the contracts specified what the desired quality would be in all conceivable scenarios.

4.5. Risk allocation
The risks of the two parties were distributed between them via the agreed payment methods. Under Incentive Alignment above, we have discussed the various payment methods and the incentives for both parties in the agreements. In agreements with contracted lump-sum payments or global hospital ceilings, the hospitals bore the bulk of the risk; the risk was greater under ceiling provisions than under global-sum

provisions, because the former carried no revenue guarantees. Provisions allowing episode fees, and in some cases lump-sums or global hospital ceilings, to be adjusted during the contract period heightened the risks for insurance companies, especially if the size of such adjustments was not precisely delimited in the contracts.

4.6. Protective measures

Measures were included in all contracts for overseeing hospital performance and for averting or resolving any conflicts that might arise. Such measures included monitoring, dispute resolution procedures and penalties. The precise terms of such measures varied by insurance company.

Monitoring

Various arrangements were made for the monitoring of hospitals. First, there were requirements for the routine reporting of volume, quality, treated policyholders and hospital financial status. An example was monthly reporting by hospitals of the numbers of closed (completed) episodes of care and the value of any work in progress (OHW). The latter was defined by the Dutch Healthcare Authority (NZa) as 'the value of the treatment episodes active at the end of a financial year for which a care product has been initiated/opened, but for which insurance claims cannot be submitted until after year-end' [30]. One insurer requested notification if a hospital anticipated overshooting the contracted lump-sum or global hospital ceiling. Hospitals were also subject to requirements to keep records of scores on specified quality indicators and, in some cases, to report these on their websites. Most such indicators were obtained from the quality programme Visible Care (ZiZo), from the Association of Dutch Health Insurers (ZN) or from the Health Care Inspectorate (IGZ). One insurer for example requested ZiZo and IGZ indicators; another required ZiZo and ZN indicators. Some insurers included provisions requiring hospitals to report daily on all policyholders currently in treatment for purposes of insurance cover verification. Insurers also required information on the financial standing of hospitals in the form of annual and semi-annual reports.

In addition to such reporting requirements, two insurance companies standardly required intermediate consultation meetings to discuss performance and new developments relating to the volume, nature and quality of care and the associated costs, as well as reviewing the hospitals' financial management and monitoring policyholders' complaints.

Dispute resolution

The contracts stated that the parties would, by preference, resolve disputes mutually as much as possible. If parties failed to comply with provisions, consultations would be held to seek joint solutions. Parties would resort to legal action only if attempts at mutual resolution failed. In the worst case, contracts could be dissolved. One

insurance company included provisions stating that it could require hospitals to draw up improvement plans and giving the insurer the right to publish a public warning should the hospital fail to correct deficiencies.

Penalties

No directly imposed penalty sums were provided for in the contracts. Five insurance companies did include specific provisions enabling revocation of a hospital's entitlement to provide, or submit claims for, services for which it did not satisfy the quality or volume standards. One company required hospitals to notify the insurer if it were to deviate from standards, in which case an improvement plan would be drawn up. Should the hospital not satisfy the requirements within the specified period, the insurer would cease reimbursing the care. The insurance company that paid incremental reimbursements for specific services meeting specified quality criteria also included a provision declaring that bonus immediately null and void should the quality criteria not be maintained.

Table 2. Summary of contract characteristics

Content of contracts between Dutch health insurance companies and hospitals	
Property rights allocation	The relationships of governance in a hospital are legally defined, thus constituting the baseline situation in which a contract is signed. Some insurers included contract provisions to obtain more certainty about those relationships.
Contract duration	The duration of most contracts was one year. One company worked with both one- and two-year contracts. One company employed supplementary framework agreements containing arrangements about quality control and data sharing over a five-year period.
Incentive alignment	Provisions were made in all contracts about costs, volume and quality of care. Some insurers provided performance rewards in the form of selective contracting or incremental reimbursements if specified standards were met.
Degree of contract completeness	Contracts were incomplete in terms of performance requirements and the allocation of financial risk. Some left room for fee renegotiation, including reassessment of contracted lump sums or global hospital ceilings. Arrangements were included about quality, albeit with little detail. No contracts specified desired quality in differing scenarios.
Risk allocation	The risks of the two parties were distributed between them via the agreed payment methods. Though hospitals appeared to bear the bulk of the risk in both the lump-sums and the global hospital ceilings methods, it was unclear how profits and losses might ultimately be distributed.
Protective measures	All contracts included measures for overseeing hospital performance and for averting or resolving conflicts. Examples were monitoring, dispute resolution procedures and indirect penalties.

5. Discussion

5.1. Uncertainty and complexity strongly influence the content of contracts

Uncertainty and complexity are significant factors determining the structures of contracts between Dutch hospitals and health insurance companies for the delivery of specialist medical care services. Such influences are reflected in rather short contract durations, in contract incompleteness and in provisions for renegotiation during the term of validity.

Most contracts we analysed had one-year durations, and only a few spanned two years. Long-term supplementary contracts may be useful if large investments need to be made, affording certainty to both parties and hence reducing transaction costs. A disadvantage of long-term contracts is a potential reduction in flexibility, as well as in market efficiency. Given the numerous uncertainties, long-term contracts will often need to be renegotiated in practice, thus raising transaction costs. Crucial considerations in long-term contracts are how the parties deal with uncertainty and whether they regard such contracts as a basis of trust and confidence for addressing any uncertainties that arise, without the need to tightly regulate everything in advance.

The contracts we studied were incomplete in terms of performance issues and financial risk allocation. The fact that hospitals perform wide arrays of procedures on many types of patients makes it complicated and unfeasible for a hospital and an insurer to determine in advance exactly what will happen in all contingencies. That is why many contracts allowed for renegotiation. Strict adherence to contracts could entail great financial risks. Should health care volumes far exceed contracted global hospital ceilings, for example, that could jeopardise a hospital's financial standing. It is still unclear what measure of contract completeness would be achievable in practice.

5.2. The role of the Dutch Ministry of Health

Policy uncertainty

Contracting parties have many uncertainties to cope with. As well as the lack of foreknowledge about health care volume and technological developments, there is uncertainty about policy shifts. The latter may be even more unpredictable than the former. The health ministry may try to mitigate such uncertainties by negotiating agreements with stakeholders and by pursuing long-term policies. That can be quite a challenge in practice, as was seen in the transition to the more transparently bundled DOT payment system just when market parties had become accustomed to the earlier DBC care bundles. At the time of our study in 2012, insurance companies and hospitals still had little clarity about the costs of the new product structures [31]. When policy measures are launched in rapid succession, market parties no longer find it feasible to formulate competitively priced and binding contracts.

The political environment and the regular changes of government constitute, as it were, an inherent source of uncertainty about the direction in which the health care system is moving. For market parties, clarity and certainty about future expectations are essential conditions for fulfilling their roles and responsibilities in the system. A good example of policy for the longer term was the 2012–2015 Administrative Outline Agreement (BHA) with health care providers and insurance companies, whereby the health ministry secured commitments to limit the yearly cost rises. Once signed, that agreement provided guiding premises for contracting parties in their negotiations. The agreed growth curbs were reflected in the contracts we studied. From a public welfare perspective, however, it is important that BHA provisions not be transferred one to one into the contracts; differences between hospitals need to be allowed for. It is also important that such an outline agreement not be nullified by a succession of operational-level measures, such as the transfer of payment for hospital-prescribed to hospital budgets.

5.3. What was missing or lacking in the contracts?

Little use of value-based payment models

Performance rewards can give a strong impetus to competition in the hospital market. The idea is to reward hospitals that deliver higher-quality care. Value-based remuneration was evident on a limited scale in the contracts for 2012; that is, limited numbers of treatment bundles were contracted selectively or were eligible for quality-related incremental reimbursements. Whether value-based reimbursement is desirable, and in what form, will depend partly on the type of health care involved. For emergency care, reimbursement bonuses would be more appropriate than selective contracting, because geographic proximity is important. Complex care that benefits from economies of scale and care concentration would be more suited for selective contracting. Health insurers have an interest in employing value-based remuneration in particular for services that are frequently performed or for which large variations in fees and/or quality exist. A prerequisite in any case is the availability of adequate information about quality [32]. The criteria used in selective contracting in 2012 were mainly the existing standard quality criteria. It seems probable that health insurance companies still had too little reliable data on quality available.

Payment mechanisms were not used in practice to allocate risks

Various payment methods might be included in contracts to spread risks across the contracting parties. Both ceiling provisions and lump-sum arrangements placed a large share of the risk on the hospitals, yet it still remained to be seen whether renegotiations would take place and how profits or losses would ultimately be distributed. Predetermined global reimbursement sums do afford hospitals a measure of certainty about expected revenues.

Little use of sanctions or penalties
Evidently the well-known Dutch consensus model is also at work in the health care purchasing market. Health insurance companies and hospitals do their best to reach mutually satisfactory solutions. Although contracts may be terminated prematurely if a party fails to comply, that is unlikely to happen in practice. Other considerations such as mutual dependence and reputation preservation seem to play much stronger roles in contract compliance. Contracting parties benefit from good reciprocal relationships because the probability is high that they will be dealing with each other in the future.

5.4. Limitations of empirical research in contracts

This study has its limitations. Some dimensions, such as contract duration, were easily quantifiable. Discrete variables containing options, such as whether or not hospitals were required to continue delivering care beyond a maximum, could be unambiguously scored. However, factors regarded in contract theory as highly instrumental in determining contract content, such as complexity and uncertainty, were mostly difficult or impossible to measure [18].

In addition, precisely worded provisions in contracts may be given a modified interpretation by both contracting parties, or they may diverge in their interpretations. Parties may have also made mutual arrangements that are not specified literally in the contracts, making them unidentifiable for outsiders [18].

6. Conclusions

Uncertainty about future developments has had a significant impact on the contracts concluded between Dutch health insurance companies and hospitals for the reimbursement of hospital-based specialist medical care. So far, the uncertainty has resulted in short contract durations, incompleteness in contracts and provisions for intermediate renegotiation. Many insurers include reimbursement ceilings or global-sum payments in contracts with the aim of curbing the cost growth of health care and limiting their own risks. The fact that many hospitals agree to such provisions is an indication that insurers have sufficient bargaining power vis-à-vis hospitals. The Administrative Outline Agreement (BHA) between government, insurers and hospitals to stem the overall growth of health care expenditure has probably been a major factor in the cost restraint during the recent economic crisis. Since both hospitals and insurers had committed themselves in the BHA to jointly limit the costs of hospital care nationwide, those commitments were also recognisable in the individual contract negotiations between insurers and hospitals.

Our review also revealed that insurers had taken some initial steps towards payment differentiation; that is, a limited degree of value-based payment models was observed, as well as some initial arrangements about quality. This is a step in the right direction. If managed competition is to make a genuine contribution to the system goals of quality, accessibility and affordability of health care, then future contracts will need to put more emphasis on the quality of care and on the necessary financial incentives for achieving it.

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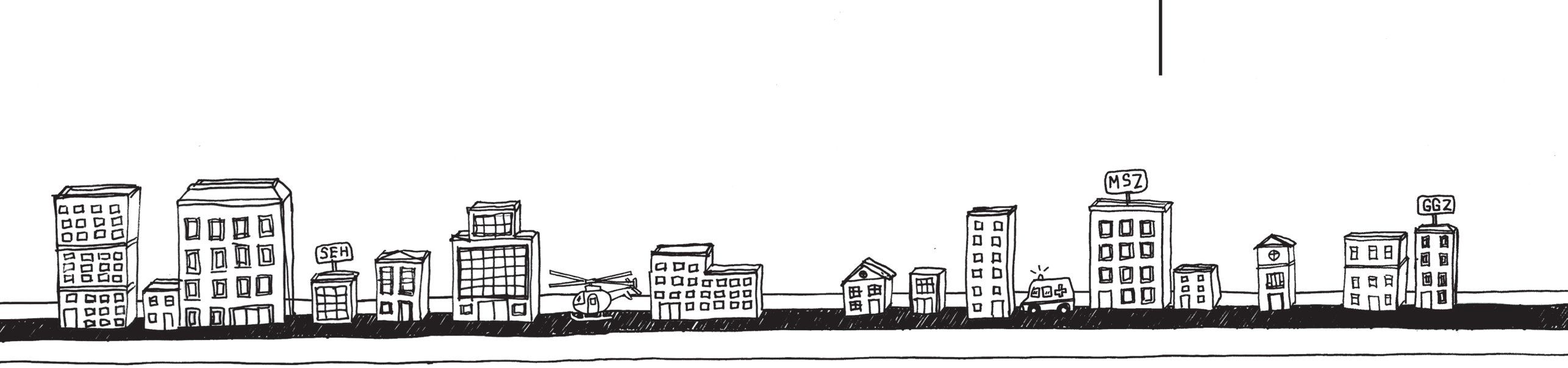
3

In search for the optimal provider-payer contract: A trade-off between transaction costs and provider-tailored contract design in purchasing behavioural health

Submitted and under review as: Ruwaard S., Struijs J., Douven R., Polder J. In search for the optimal provider-payer contract: A trade-off between transaction costs and provider-tailored contract design in purchasing behavioral health



Abstract

Context: The way we pay for health care is increasingly seen as an opportunity to increase value, both by improving quality and by reducing cost. Health care can be purchased on the basis of 'any-willing-provider' (AWP) contracts or payers and providers may negotiate about contractual conditions. Which contracting strategy is welfare-enhancing depends on the mutual added value for the market parties involved. As regulation does not allow public payers to distinguish between providers, they must default to AWP contracts. Private payers do have opportunities to tailor contract design to specific provider characteristics; theoretically that could create stronger incentives to deliver value in health care.

Methods: We explore how the purchasing of behavioral health contributes to the incentive to deliver value by analyzing the insurers' purchasing policies and 31 private provider–payer contracts for behavioural health. The contracts were signed in the Netherlands in 2014 and 2015.

Findings: Provider-tailored contract design existed at two levels: (1) private payers employed different contract templates across different provider groups and (2) negotiations could lead to further tailoring to individual providers. The use of different templates across provider groups explained most of the provider-level variation. However, because payers employed their own contract templates, most of the contract variation we observed was across payers and not across providers. Such payer-level variation increased provider transaction costs.

Conclusions: Private payers negotiated with behavioural health care providers about contract provisions, and this led to some degree of provider-level tailoring of the contract templates. It is difficult to determine how the benefits of provider-tailored contract design might weigh up against the added transaction costs for providers. In any case, current contracting practice could be improved both by reducing transaction costs for providers and by seeking higher levels of provider-tailored contract design. This would require greater transparency about provider performance.

Key words: financial incentives, pay for performance, global budget, behavioural health

1. Introduction

The way we pay health care providers is increasingly seen as an opportunity to enhance value-based health care delivery [1–3]. With the emergence of alternative payment models such as bundled payments [4, 5], shared savings [6, 7] and other hybrid forms of capitation, many countries are shifting away from paying for volume towards paying for value. Nonetheless, fee-for-service (FFS) payment, capitation, salaries, global budgets and diagnosis-related groups (DRGs) remain the most dominant payment forms in OECD countries [8]. Depending on characteristics of the countries' health systems, health care is purchased by either public payers, private payers or both. In the United States, for instance, public agencies purchase through Medicare and Medicaid and private insurers may purchase on behalf of private individuals and/or employers.

Public payers are only able to offer 'any-willing-provider' (AWP) contracts, with contractual conditions laid down beforehand; any provider may sign the contract under those conditions. Private payers, on the other hand, can negotiate with providers about contract design and may thereby employ different contracts across providers. Because contextual factors may play an important role in the effectiveness of a payment model, the opportunity that private payers have to tailor contract design by negotiating with providers about specific provider characteristics may theoretically help to create stronger incentives to deliver value in health care.

Little is known as yet, however, about the extent to which private payers are actually tailoring contract design to individual providers, since accessibility to contracts for research purposes is limited by the confidential nature of contracts. Consequently, current knowledge about private contract design is limited because research is mostly based on interviews (see e.g. Muhlestein et al., Conrad et al., [9, 10]). To the best of our knowledge, only the Alternative Quality Contract (AQC) from Massachusetts has been described in detail by Chernew and colleagues [11]. It is therefore still unclear to what extent provider-tailored contract design exists in practice.

In the Netherlands, we did gain access to private contracts for behavioural health care that were concluded by all purchasing parties in the country. By analysing these contracts and the purchasing policies of the individual payers, we seek to address the research gap with regard to provider-tailored contract design. In this chapter, we determine the level of provider-tailored contract design by examining the variation in contract design that exists across payers and providers. We further explore what provider characteristics might explain the amount of variation. From that analysis we draw general conclusions and make recommendations for future health care contracting practice.

2. Conceptual considerations in contract customization

Payers contract providers for health care on behalf of their insured populations. An important aspect of contract design is the choice of payment model. There are roughly five payment model types: cost-based reimbursement, fee-for-service (FFS) reimbursement, per-diem payments, per-episode (bundled) payments and capitation [12]. The providers' level of financial risk increases in the order of that sequence, as illustrated in figure 1; correspondingly, the payers' level of financial risk decreases in that order. With an increased interest in efficiency improvement in health care, we are gradually shifting away from paying for volume to paying for value; that is, we are moving from the left side of the spectrum to the right side – towards payment models that are generally associated with higher levels of risk for providers.

Within any particular payment model, there are multiple ways to increase or decrease a provider's financial risk by adding other contract provisions. For example, under a capitation contract, the inclusion of a stop-loss provision[1] lowers the risk, whereas the introduction of a maximum treatment volume clause raises it. Ultimately, the specific design of such provisions will determine the risk level; for instance, stop-loss provisions have thresholds, and the lower the threshold, the more risk reduction for the provider. Hence, both the inclusion and the design of such provisions translate into a bandwidth of financial risk, as depicted by the grey area in figure 2A.

In figures 2A–2E, we attempt to illustrate the search for an optimal provider–payer contract by using provider A and provider B as illustrative examples. We assume that provider A has a maximum risk level as indicated by line A in figure 2B. Payment models that exceed that level of financial risk may cause provider A to go bankrupt, should costs rise unexpectedly for reasons beyond the provider's control. Bankruptcy of well performing providers like provider A would be undesirable from a societal point of view. In search for the optimal contract, we are thus aiming for a payment model that is furthest to the right, without the threat of provider A going bankrupt. That balance is to be found in the grey segment of line A.

Other providers, like provider B, may be associated with different maximum risk levels, depending on factors such as care volume, type of care delivered and the sophistication of the provider's IT infrastructure. As illustrated in figure 2C, provider B has a lower maximum level of risk. Consequently, we seek to offer provider B a contract that lies in the grey segment of line B.

1 A stop-loss provision is a threshold that caps the maximum amount to which the provider is at risk; or, in some cases, costs that exceed that threshold may be shared between the payer and provider (13. Porter, M.E. and B. Kaplan, *How should we pay for healthcare.* 2015.

When contracting providers A and B, payers may offer an any-willing-provider (AWP) contract or they may negotiate with the providers individually [14]. Public payers employ AWPs only, because legislation does not allow them to distinguish between providers (for non-objective reasons, that is).[2] Private payers may, however, choose between providing AWPs and negotiating contracts with providers. In our example, employing an AWP will either result in provider B having excessive risk levels or in provider A operating at a risk level with suboptimal incentives (for example AWP' in figure 2D). Theoretically, employing AWPs will always yield suboptimal outcomes.[3]

Private payers can choose to negotiate with individual providers and offer provider A and provider B each a unique contract. A private payer can theoretically offer provider A a contract in the grey segment of line A, for example A', and offer provider B a contract in the grey segment of line B, for example B' (see A' and B' in figure 2E). The payer would thereby introduce the highest attainable value incentives for both providers without exposing them to unacceptably high levels of risk that might result in bankruptcy.

Although a provider-tailored contract may generate optimal incentives, a private payer must decide whether the transaction costs associated with offering every single provider a customised contract are worth the potential gains. After all, provider-tailored contracts lead to higher transaction costs in the form of time investment for negotiating with individual providers about contract terms and the administrative costs of writing the contracts. From a societal point of view, it is desirable to keep transaction costs down for both payers and providers. Higher transaction costs for the payer are likely to result in higher policy premiums and higher provider transaction costs will probably result in less time for the patients. Transaction costs thus create downward pressure on the desired level of provider-tailored contract design from a societal point of view.

In addition, whether negotiations will indeed result in an optimal contract (in this case A* for provider A and B* for provider B) also depends upon the bargaining position of the payer vis-à-vis the provider. If the payer is more dominant, compensation may be lower (and providers may operate at excessive risk levels); conversely, if the provider is more dominant, compensation may be higher (with providers operating below their optimal risk levels). The optimal contract is thus more likely to be reached when both parties are able to exert some pressure on the other party. It is therefore of the essence that parties have balanced bargaining positions, so as to increase the likelihood that contracting practice will be in line with what is optimal from a societal point of view.

2 Although public payers may offer different contract options in the market, they must make those options available to all providers and may not distinguish between providers. Thus, if Medicare or Medicaid offers the choice between both upside and downside or only upside risk, that option is available to all providers. A public payer may not offer that option to a limited segment of the market.

3 An exception would be if all providers in the market enjoy equal levels of financial risk.

In the Netherlands, we found that private payers were employing both contracting strategies. AWP contracts were used primarily for smaller health care providers [15], whereas payers might choose to negotiate with larger health care providers such as hospitals and behavioural health care providers.

The different strategies may have arisen from the fact that the mutual added value from negotiating is larger in contracting larger parties, such as a hospital or a behavioural health care provider, than in contracting a primary care physician.

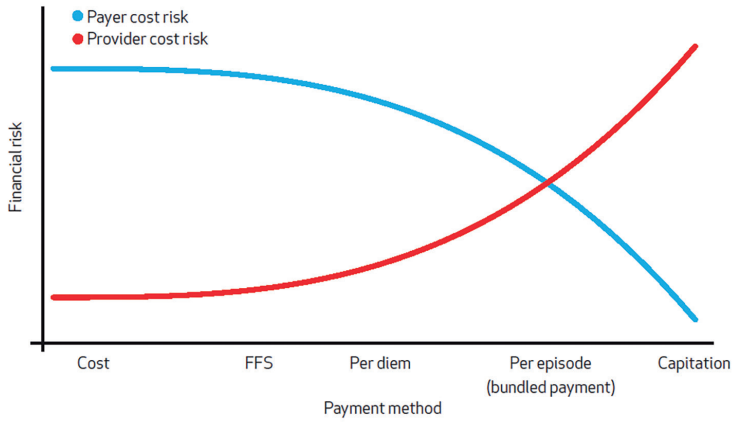


Figure 1. Payment models and financial risk allocation in payer–provider contracting
Source: Frakt, A.B., et al., 2012 [12]

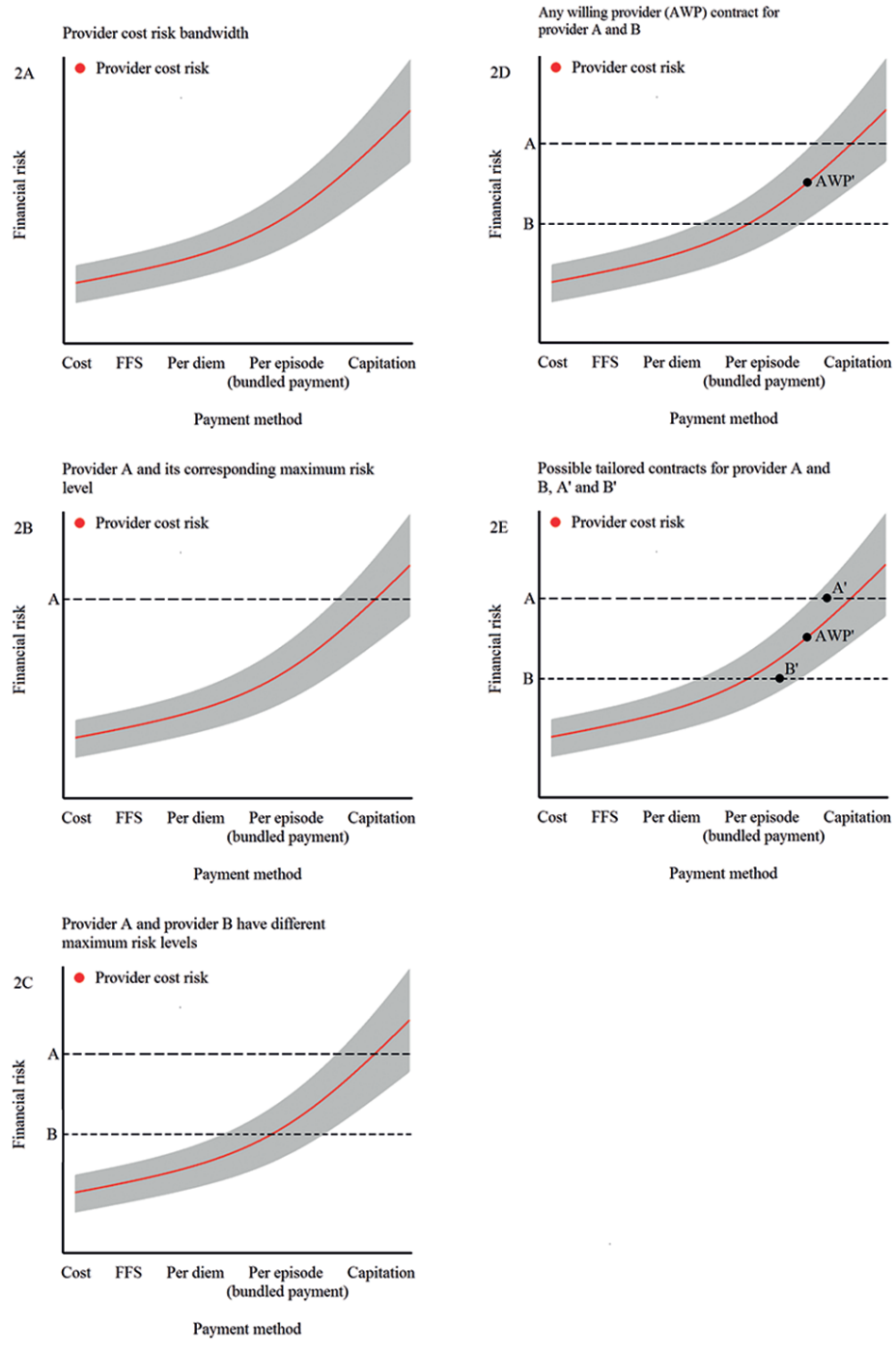


Figure 2 (A–E). Optimal provider–payer contract
Source: Authors' own analysis, based on Frakt, A.B., et al 2012 [12] (figure 1).

3. Description of purchasing policies and provider–payer contracts for behavioural health care

In this section we explore how contract negotiations have translated into contract design by analysing variation in private provider–payer contracts for behavioural health care (for a detailed description of the behavioural health care market in the Netherlands see appendix 1). As all contracts were based on global budgets, we take Dredge's (2004) framework in describing global budgets [16]. He defines a global budget as 'an overall spending target or limit that constrains the price and the quality of the services provided' [16]. Because Dredge's framework is very elaborate, we have chosen to focus for the purpose of this article on the most relevant aspects in a global budget contract design: (1) scope, (2) setting the budget, (3) performance incentives and (4) annual adjustments. The scope is the 'definition of volume and services to be purchased and provided' [16]. Setting the budget involves the 'approaches to the mechanics of setting the global budget' [16]. Performance incentives are contractual provisions that encourage good performance and penalise poor performance [16]. Annual adjustments involve measures to maintain the real-terms value of the global budget [16].

Relying on these four dimensions, we have systematically described the insurers' purchasing policies for behavioural health care.[4] Table 1 provides a general, condensed description of the contracts based on the purchasing parties' policies in 2015.[5] Note that this is a simplified version of the purchasing policies, which were much more complex in reality. Payers might differ in their purchasing strategies, as one insurer might selectively contract a condition like depression while another might not. Or an insurer might pursue different strategies across different groups of providers, for example employing pay-for-performance indicators solely for providers with revenue levels above a certain threshold.

4 In examining purchasing policies for behavioural health care, we excluded purchasing from independent practices from the analysis.

5 The purchasing parties were the insurance organisations Zilveren Kruis, VGZ, CZ, Menzis, DSW and Multizorg (the latter of which purchased services on behalf of the four remaining smaller insurers, ONVZ, Zorg en Zekerheid, A.S.R. and Eno).

Table 1. General description of Dutch health insurers' purchasing policies for behavioural health care in 2015

1. SCOPE	
Volume and services	Contracts covered care for all insured persons (aged 18+) who applied to a provider for behavioural health care. Contracts could cover all basic and specialised behavioural health care, or basic and specialised care might be contracted separately. Payer-level variation existed with regard to the number of excluded services.
2. SETTING THE BUDGET	
The mechanics of setting the budget	Global budgets were based either on the historical budget or on claims data. Both could be adjusted for insurer mutations, changes in relevant policies and legislation, mutations in services delivered and a yearly index. A global budget might be further subdivided into sub-budgets (for example basic vs specialised behavioural health care). Providers were reimbursed at fee-for-service rates. Should the total reimbursed amount exceed the global budget, the difference was transferred back to the insurer.
3. PERFORMANCE INCENTIVES	
Incentives for good performance and penalties for poor performance	Contracts contained written agreements with respect to quality. A pay-for-performance component was often included, with increases for both fee-for-service rates and global budgets based on process and/or structure indicators (for examples of such criteria see appendix 3). Additional provisions might be incorporated, including maximum-cost-per-patient/policyholder/client clauses and maximum volume clauses.
4. ANNUAL ADJUSTMENTS	
Measures to maintain the real-terms value of the global budget	The size of the global budget could be adjusted in response to events that led to unanticipated changes in volume, such as changes in the size and case mix of the population or changes in pertinent legislation and regulations (e.g. adjustments to the NZa maximum rates).

The level of provider and payer variation across the payers' purchasing strategies with respect to contract scope, financial budgets and performance incentives is illustrated in table 2.[6] We define payer-level variation as the number of methods used to purchase care (with the number of dots representing the number of methods pursued) and provider-level variation as the number of insurers that employ different purchasing strategies depending on provider characteristics (with the number of dots representing the number of insurers that distinguish between providers). The table reveals more variation in contract design (number of methods) across payers than across providers, especially in terms of the design of financial budgets and performance incentives.

6 The most relevant and tangible aspects with respect to contract scope, financial budget and performance incentives have been included in table 2. Annual adjustments have not been included, as they are part of the ex-post calculations.

Table 2. Illustrative examples of provider- and payer-level variation in insurers' purchasing policies, 2015[7]

	Provider-level variation1	Payer-level variation2
1. SCOPE		
Anxiety[8]	●	●●
Depression	●	●●
Electroconvulsive therapy (ECT)	●●●	●●
Methadone	●	●●
Crisis	●●●●●	●●
Eating disorder	●	●●
Dementia	●	●●
Addiction	●	●●
DBC-stay (levels A–G)	●	●●
DBCs > 18,000 minutes	●	●●
2. SETTING THE BUDGET		
Number of sub-budgets	●	●●●
Generic starting rate(s) for all or selected services (yes/no)	●●	●●●●
Number of generic starting rates	●●	●●●
Fees based on NZa fee scheme or payer's fee scheme	●●	●●●
Starting reimbursement rates (%)	●●●	●●●●●●●
3. PERFORMANCE INCENTIVES		
Number of global budget increments	●●	●●●●●●
Number of fee increments	●●●	●●●●●●●●
Potential fee increases (%)	●●●	●●●●●●●●●●●
Potential budget increases (%)	●●	●●●●●●

[1] Provider-level variation: the number of dots represents the number of insurers that pursue different purchasing strategies based on provider characteristics.

[2] Payer-level variation: the number of dots represents the number of methods used to purchase care.

With respect to contract scope (dimension 1), table 2 shows that ten products (or types of care) might be subject to selective contracting. Eight of the ten products were diagnosis-based (e.g. anxiety, depression and electroconvulsive therapy (ECT)), one product represents 'stay', and one product represents products that exceed 18.000 minutes (that is, treatment plans that exceed 18.000 minutes). Payer variation with regard to these products derived from two methods: pursuing selective contracting or not pursuing selective contracting, as depicted by two dots in the payer-level variation column.

7 Annual adjustments (dimension 4) have been left out of this analysis, as these are part of the ex-post calculations.

8 This refers to anxiety in which no physical condition had been diagnosed as the cause by either a primary care doctor or a medical specialist.

Selectively contracting a specific product might involve meeting a set of criteria (whereby not meeting the criteria implies that the product would not have been purchased from that specific provider), as with products like anxiety and depression. Alternatively, selective contracting might be based on whether the payer and provider had a contract in the previous year (whereby new providers would not have been eligible for having the product reimbursed), as with products like ECT and methadone. The product 'crisis' showed the greatest provider-level variation. All five payers selectively contracted crisis interventions, with some insurers using specific eligibility criteria and others using prior contracting.

With regard to budget setting (dimension 2), table 2 shows that payer-level variation exceeded provider-level variation on all five components. Provider-level variation was explained by three provider characteristics: provider revenue level (in relation to the respective payer), provider type and provider training level. The component 'starting reimbursement rates' was explained by all three characteristics and showed the largest payer-level variation (for a full description of the starting rates see appendix 2).

Table 2 reveals the largest payer-level variation with respect to performance incentives (dimension 3). Practically all insurers employed different numbers of fee and/or budget increments, and the potential increases associated with pay-for-performance schemes varied by insurer as well. In terms of fee increments, providers might be subject to 0, 1, 2, 3, 5, 10, 12 or 36 indicators (hence the 8 dots). Some payers again adjusted their lists of indicators to provider-specific characteristics. One payer adopts 10 indicators for clinical providers that are not hospital based psychiatric care (Dutch abbreviations PAAZ/PUK), 12 indicators for exclusively ambulant providers and 10 for PAAZ/PUK, in case negotiated face to face; the remaining providers that were contracted digitally were eligible for 8 BGGZ and 2 SGGZ indicators.[9] For a comprehensive list of all indicators used for either fee and/or global budget increments, see appendix 3.

Performance incentives were not limited to pay-for-performance indicators. Additional provisions might be incorporated, including maximum-cost-per-patient/policyholder/client clauses, maximum volume clauses, clinical downsizing targets and caps on hourly fees. At the end of the year, such provisions could be used either to settle the final budget or as guidelines.

Overall we found that provider-level variation was largely explained by the providers' revenues (in relation to the respective insurer), provider type and satisfaction of sets of criteria. Other characteristics, such as the spectrum (and relative proportion) of care delivered, practitioner training levels, historical volume levels and previous-year contracting, were sometimes used as well. For additional examples that illustrate provider-level variation, see table 3.

9 BGGZ and SGGZ are the Dutch abbreviations referring respectively to basic behavioural health care and specialised behavioural health care.

Table 3. Illustrative examples of provider characteristics resulting in variation in contracting policies, 2015

		Provider characteristic
Scope	Electroconvulsive therapy (ECT)	**New or previously contracted provider:** Some complex or expensive services (such as ECT) are best concentrated with a limited number of providers. ECT might therefore not be contracted with new providers.
	Crisis	**Selective contracting based on satisfaction of specific criteria:** Crisis care was contracted only with providers authorised for regional crisis care services, i.e. on the basis of a recent arrangement with police and other relevant partners to provide 24-hour crisis emergency services.
	Depression	**Selective contracting based on satisfaction of specific criteria:** Provider must meet the specific criteria derived from guidelines laid down by their professional discipline (beroepsgroep).
Financial budget	Number of sub-budgets (#)	**Market share or revenue:** Providers with revenue levels below €4 million were assigned two sub-budgets, one for BGGZ and one for SGGZ. Providers responsible for over 50% of a payer's insured population in the provider's region were assigned three sub-budgets: BGGZ, SGGZ-stay and SGGZ-treatment
	Fees based on NZa fee scheme or payer's fee scheme	**Market share or revenue:** For providers with insurer revenue levels above €250,000, the payer employed its own fee scheme; for other providers the NZa fee scheme was employed for BGGZ and the payer's fee scheme for SGGZ.
	Starting rates (%)	**Practitioner training level:** Starting rates for BGGZ were dependent on practitioners' training levels, with higher rates for primary care psychologists, psychotherapists and psychiatrists than for health psychologists.
Performance incentives	Number of fee increments (#)	**Provider type and revenue:** Amongst providers with insurer revenue levels above €250,000, a distinction was made between provider types. Integrated care providers were eligible for 10 increments, providers of inpatient care (except hospital psychiatric units) were eligible for 12 increments and providers delivering exclusively outpatient care for 10 increments.
	Potential fee increase (%)	**Revenue and provider type:** Integrated care providers were eligible for a maximum fee increase of 5% and providers responsible for over 50% of the insurer's population in the provider's region were eligible for maximum increases of 15% for both BGGZ and SGGZ.
	Potential budget increase (%)	Revenue and provider type: Only providers with revenue levels above €300,000 were eligible for maximum budget increases of 12%.[2]

10 The minimum guaranteed budget was 88% of the maximum available budget. The maximum available budget was derived by taking the previous year's global budget corrected for child and adolescent behavioural health care. In the event of persistent underproduction, the previous year's realised revenue levels were used instead. Providers meeting all criteria were eligible for 100% of the maximum available budget.

In addition to the insurers' purchasing policies, we analysed provider–payer contracts. The sample consisted of 31 contracts from three large behavioural health care providers for two separate years (2014–2015 and 2015–2016); it included all six Dutch purchasing parties. The sample does not include all contracts from all separate insurers during the two-year period.

Negotiations could lead to some further adjustments, such as supplementary agreements about the head- and fellow practitioner, the maximum number of weeks to report a treatment episode, or exceptions involving additional settlements. For example, some contracts allowed for an expanded range of specialists, such as addiction specialists or geriatrists, who were eligible to serve as the head practitioner. One contract extended the deadline for reporting a treatment episode to 6 weeks, instead of the 3 weeks stated in the template. Another provider was exempted from the clause requiring an intention to treat at least 15% of all patients at the basic behavioural health care level.

4. Discussion and conclusion

In this chapter we have explored the level of contract customisation in the purchasing policies of Dutch health care insurance companies and analysed contracts for behavioural health care. We found that contracts were provider-customised along two routes: (1) payers employed different templates across different provider groups and (2) provider–payer negotiations could lead to adjustments to the payers' contract templates. Most provider-level variation was actually explained by the use of different contract templates for different provider groups. However, because payers employed their own contract templates, most of the contract variation we observed was across payers rather than across providers.

Are current contracts at the sweet spot?

Providers are currently contracted based on global budgets, with possible constraints such as sub-budgets, maximum cost figures per average patient or maximum lengths of stay, which increase provider-level financial risk. The question is whether we are currently operating at the highest attainable level of financial risk for providers. A limited number of providers have exited the market [17] and providers have also been merging [18].[11] From this information, it is unclear whether providers are currently at their maximum risk level. But if they are not, we may want to move on to payment

11 In 2010 and 2011, there were respectively 6 and 7 (secondary care) non-budgeted care providers. In 2010 and 2011, respectively 312 and 698 primary psychological care providers exited the market. The large number of primary psychological care providers exiting the market is explained by the fact that some providers may treat in one year but not in the next year, resulting in a large number of providers exiting the market [17].

models that are associated with higher levels of risk, such as global payments,[12] because such payment models are expected to improve societal value.

Internationally, several initiatives have been started to experiment with global payments for behavioural health with the aim of improving coordination with primary care [19–21]. Because these experiments have just begun, there is still little evidence as to how much global payments can contribute to value. Should international experiences show that they can substantially enhance value, then global payments may be worth considering in the Netherlands as well.

Payers make trade-offs between the option of negotiations and the associated transaction costs

Instead of writing a unique contract for every provider–payer combination, payers lower their transaction costs by incorporating in their global budget templates different clauses for different provider groups; that way a payer can benefit from some degree of customisation, while keeping transaction costs at an acceptable level. Payers may also choose to negotiate face to face only with providers with which they enjoy revenue levels above a certain threshold. The benefits, or added value to be shared, of negotiating with smaller providers probably do not weigh up against the higher level of transaction costs that are associated with negotiating. Whilst negotiating with a larger provider may be worthwhile, smaller providers may have to accept the contract template as it is. Thus, payers appear to make trade-offs between the benefits of negotiating and the associated transaction costs; they can thereby enjoy some of the benefits of customisation while keeping transaction costs low.

Although employing different contract templates for different provider groups helps to keep transaction costs low for payers, the providers may now be confronted by six different contracts (one for every payer), thus resulting in high provider transaction costs. Nonetheless, were providers to impose their own contracts on payers, that would lead to even higher transaction costs, because payers would then face a substantial increase in contracts for behavioural health care alone, alongside their contracts with health care providers such as hospitals and primary care practices.

Viable options for reducing provider transaction costs might be to create more uniformity in contract details across payers and to reduce the number of purchasing parties. Some possibilities for achieving more uniformity in contract design would be to adopt the payment design of the dominant insurer in the region or to coordinate contract details together with Zorgverzekeraars Nederland (ZN), the umbrella organisation of Dutch

12 Global payments are based on a per-member-per-month (PMPM) payment, in contrast to global budgets, which constitute spending targets.

health insurers,[13] and the ministry of health. To reduce the number of payers, an option worth considering would be to transfer the purchasing of care from the local authorities back to the health insurers.

Conclusion

In conclusion, the Dutch transition from a health care system based on public payers to one based on private payers has spurred provider-tailored contract design for behavioural health care. Private payers make trade-offs between the degree of provider-tailored contract design and the transaction costs associated with contracting providers. The private payers' contribution to societal value could increase further if they were to employ higher levels of provider-tailored contract design and take steps to reduce provider transaction costs. Payers have initiated a significant trend towards the increasing transparency that will be necessary to take provider-tailored contract design to the next level. The benefits will most likely be reaped in the near future.

13 Zorgverzekeraars Nederland (ZN) is an organisation comprised of nine Dutch health insurance companies which acts as an umbrella organisation for those insurers. 22.Nederland, Z. English. 2017.

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Appendix 1. Behavioural health care in the Netherlands

Behavioural health care expenditure amounted to about €6.6 billion in the Netherlands in 2013 [23]. In the Dutch health care system, behavioural health care is subdivided roughly into three segments: primary care with support from a mental health practice nurse (POH), basic behavioural health care (BGGZ) and specialised behavioural health care (SGGZ). Patients consult their primary care doctor first and require referral to see a specialist. The basic behavioural care segment serves patients with mild, non-complex psychological problems or with long-term but stable mental health problems. Specialised behavioural care serves patients with more severe and complex mental health disorders.

As from 2006, private insurers contract behavioural health care in a health care system based on regulated competition. Seven private insurance companies have been charged with this responsibility, but government continues to play an important role in regulating the market. Regulation defines the contracting environment and determines the level of flexibility that market parties have in contracting. The Dutch Healthcare Authority (NZa) has defined the product structure for behavioural health care in terms of DBCs (similar to diagnosis-related groups, DRGs) and it has set maximum fees for the majority of these DBCs [24, 25].

Recent changes in the organisation and regulation of the behavioural health care segment include the introduction of basic behavioural health care and the introduction of mental health practice nurses (known in Dutch as POHs), the transfer of youth and child psychology to local authorities, and an increase in the number of contracting parties for providers (phasing out of the representatiemodel). In addition, all relevant parties signed the Administrative Agreement (BHA) for behavioural health care [26], in which they jointly agreed on a set of national targets for behavioural health care, including the curtailment of annual expenditure growth to below 1 per cent, clinical downsizing targets for 2008–2020), and substitution from specialized care to basic mental care (of at least 20 per cent).

Appendix 2. Starting reimbursement rates in behavioural health care contracting

One payer adopts a starting percentage for SGGZ for hospital psychiatry, adopts a generic rate of 85% for BGGZ[14] and negotiates two separate starting rates for SGGZ-stay and SGGZ-treatment with providers that provide more than 50% of care in their region, and adopt two basic starting rates for BGGZ and SGGZ of 85% for smaller providers. A second payer adopts a starting rate of 88% for SGGZ and 83% or 85% for BGGZ depending on the physicians training level (where 83% applies to GGZ psychologists, and 85% applies to registered primary care psychologists, psychotherapists, and psychiatrists) for smaller providers. for larger providers, a general starting rate of 79% applies for all GGZ. A third payer contracts SGGZ on a basic rate of 85%, and applies fixed percentages for BGGZ as well for providers with revenue levels below 300.000 euro. For providers with revenue levels above 300.000 euro, no basic starting rate applies. Finally, the last two payers do not differentiate between providers; one does not adopt a basic starting rate at all, and the other payer adopts a starting rate for BGGZ and SGGZ of 85% for all providers.

14 BGGZ is the Dutch abbreviation referring to basic behavioural health care.

Appendix 3. Pay-for-performance indicators employed by Dutch health insurers for behavioural health care

		Insurer A			Insurer B				Insurer C		Insurer D		Insurer E
		Purchasing methods											
Performance indicator category	Performance indicator	1	2	3	1	2	3	4	1	2	1	2	1
Average cost per insured patient	Maximum average cost per patient in 2015 ≤ maximum average in 2014									1			
	Revenue per unique insured person does not exceed figure agreed in 2014 (*ceteris paribus* as to case mix).										1		
Care pathways or care programmes	Employing care programmes and care pathways								1	1			
	For all indications, provider works with a structured care programme for … % of DBC production.										1		
	Availability of care pathways aligned with continuum of care				1	1	1						
	For all indications, provider works with a structured care programme.											1	
Certifications	HKZ/NIAZ, ISO 9001 and/or NEN-EN15224 certified or in at an advanced stage of certification										1		
	The provider has a residence function and has a certified FACT or ACT team3 and/or a certified IHT, and/or written agreements with a FACT or ACT team with submission of integrated claims.										1		
	HKZ/NIAZ, ISO 9001 and/or NEN-EN15224 standards											1	
Client experiences	Client council indicator				1	1	1						
	Structured consultations between the health care providers, clients and/or family council (and possibly the health insurer) take place at least once a year to discuss client participation.										1		
	Performance on the Consumer Quality Index (CQI) has been evaluated with the client council and an improvement plan set up on the basis of that evaluation.										1		
	Provider assesses client satisfaction on CQI and/or youth thermometer.							1					

Performance indicator category	Performance indicator	Insurer A			Insurer B				Insurer C		Insurer D		Insurer E
		Purchasing methods											
		1	2	3	1	2	3	4	1	2	1	2	1
	Provider uses CQI and reports results via the SBG portal.			1									
	Provider administers CQI and reports to insurer.				1	1	1						
	Percentage of patients treated in BGGZ for whom customer feedback method (e.g. FIT/ORS/SRS) was used in 2014											1	
Clinical downsizing	Clinical downsizing (provider-tailored targets)				1	1							
	A share of clinical downsizing is reserved for vulnerable groups, such as FACT teams.								1	1			
	Provider will by 1 December 2020 achieve a 1/3 reduction in the number of bed days (*ligdagen*) as compared to the 2008 figure and can demonstrate this based on a long-term policy plan.										1		
	Provider has a long-term policy plan with respect to clinical downsizing and has aligned this sectorally and/or regionally. Or, failing such a plan, the provider has a reduction of 19.5% in 2015 (compared to 2008). If 19.5% target is not met, 5% fewer bed days will be purchased.										1		
	Total number of clinical days in 2015 (in ZVW5) has been reduced by at least 20% compared to the 2008 figure.												1
e-Health	e-Health phase 41 or sufficient progress in e-health					1	1						
	Provider has an e-health module for anxiety and depression.										1	1	
	Provider substitutes face-to-face contact by e-health. The percentage substituted in 2015 is minimally ...% compared to 2012.										1		
	Provider substitutes face-to-face contact by e-health. The percentage substituted in 2015 is minimally ...% compared to 2014.											1	
Reorganising behavioural health care delivery	An approved FACT or ACT3 format					1							

Performance indicator category	Performance indicator	Insurer A			Insurer B				Insurer C		Insurer D		Insurer E
		Purchasing methods											
		1	2	3	1	2	3	4	1	2	1	2	1
	Provider has a partnership with a primary care doctor (or partnership such as a care group or an integrated primary care centre) and/or written agreements with SGGZ, and acts accordingly.											1	
	Small-scale or regional collaboration with primary care doctors							1					
	Substitution of services from specialist to basic behavioural health care				1	1	1						
	Provider offers a percentage of care as basic behavioural health care.								1	1			
	Compared to the insurers' 2014 SGGZ-to-BGGZ service substitution target, provider is under/on/above the 2015 target (minimal deviation 1%).										1		
	Chronic patients that have sufficiently stabilised will be redirected to their primary care provider for disease management and/or relapse prevention in BGGZ and/or supervision on the basis of AWBZ/WMO.4										1		
Routine outcome monitoring (ROM)	Percentage of routine outcome monitoring (ROM) response	1		1									
	Provider reports ROM scores and is registered with the national benchmark.							1					
	National benchmarking of ROM scores for at least 50% of patients							1					
	Percentage of bundled BGGZ products opened and completed in 2014 whose ROM pre- and post-assessment scores were submitted to the SGB or NVVP-ROM-portal, Reflectum or Telepsy											1	
	Minimum percentage of bundled BGGZ products opened and completed in 2014 or 2015 whose ROM pre- and post-assessment scores are to be submitted to the SGB											1	
	Percentage of ROM scores over 1 July 2014 – 1 July 2015 based on BRAM6 reporting (reference date 1 December 2015)												1
	ROM is integrated into provider's treatment relationships (as approved by the insurer).				1	1	1						

Performance indicator category	Performance indicator	Insurer A			Insurer B				Insurer C		Insurer D		Insurer E
		Purchasing methods											
		1	2	3	1	2	3	4	1	2	1	2	1
	Percentage growth of ROM scores (w.r.t. 2013) recorded in BRAM				1	1	1						
	Percentage of valid pre- and post-registrations ≥ 40% recorded in BRAM from February to April					1	1						
	Completed behavioural health care episodes with pre- and post-assessments submitted to BRAM (1 January 2014 – 1 April 2014)								1	1			
Number of opened and/or completed behavioural health care episodes	Provider has reported the pre- and post-measurements on completed behavioural health care episodes in 2014 (starting date in 2013 or 2014) to the SBG: minimum percentage of										1		
	The provider reports the percentage of completed DBCs in 2014: minimum percentage of										1		
	Provider reports the pre- and post-assessment scores for the behavioural health care episodes opened and completed in 2014 or 2015 or completed in 2015 to the SBG: a minimum percentage of										1		
Training sites	Provider offers a training site for health psychologists.							1					
	Provider is an official training site for health psychologist and/or psychotherapists.											1	
	Provider offers a training site.												1
Websites	On your website, you provide, per location, on a quarterly basis and per product type, the average waiting times (w1 and w2).										1		
	On your website your provide waiting times (w1 and w2).											1	
	On your website, you provide contact options, specialties, treatment possibilities and fees.											1	

Performance indicator category	Performance indicator	Insurer A			Insurer B				Insurer C		Insurer D		Insurer E
		Purchasing methods											
		1	2	3	1	2	3	4	1	2	1	2	1
Provider-customised indicators and clients' choice of providers	Customised indicators such as improvements in treatment effect (Δt), ratio of direct to indirect time and lowering of average fee per DBC												1
	Individual criteria				1	1	1						
	An indicator from LPGGZ: rehabilitation support, family perspective or experiential expertise				1	1	1						
Diagnostic episodes	Percentage of diagnostic episodes is not to exceed 10% and they are performed with the intention of diagnosis and treatment by the same provider.										1		
Time claimed in treatment episodes	The average minimum time claimed by the primary and subsidiary treatment provider together in treatment episodes (in %) has exceeded the insurer's standard for this provider type.										1		
Discipline mix	Reporting the FTEs of staff that completed training for jobs listed in the occupations table of the CONO-occupations table								1	1			
PAAZ/PUK format for psychiatric care providers in general and teaching hospitals	A PAAZ/PUK format (approved by the insurer)				1								
Hospital psychiatry	Percentage of hospital psychiatric care (0%–30%, 30%–70%, ≥70%)	1											

		Insurer A			Insurer B				Insurer C		Insurer D		Insurer E
		Purchasing methods											
Performance indicator category	**Performance indicator**	1	2	3	1	2	3	4	1	2	1	2	1
Mirro seal	Mirro seal of approval		1	1									
Opening hours	Minimal number of mornings, afternoons or evenings that BGGZ provider is open per week											1	

[1.] Phase 1: provider informs public about diagnostics, treatments et cetera via its website. Phase 2: provider offers the opportunity to register online. Phase 3: provider offers an online environment with e-health modules. Phase 4: provider offers e-health modules, treatment plans, treatment goals, treatment outcomes (based on routine outcome monitoring, ROM), client satisfaction ratings (based on Consumer Quality Index, CQI) and arrangements between the patient and provider. Patients can get help and information online.

[2.] Mirro is a seal of approval awarded to providers that put extra effort into high-quality and appropriate BGGZ; delivering care at the right moment and close to the patient is what Mirro stands for (Mirro Foundation, 2014, https://www.mirro.nl/wp-content/uploads/2015/02/Handboek-Keurmerk-Stichting-mirro.pdf).

[3.] FACT stands for flexible assertive community treatment. FACT teams treat and supervise patients with complex psychiatric disorders that are also coping with problems in other life areas such as housing, employment and social contacts (source: www.ggzcentraal.nl)

[4.] AWBZ stands for the Exceptional Medical Expenses Act and WMO for the Social Support Act.

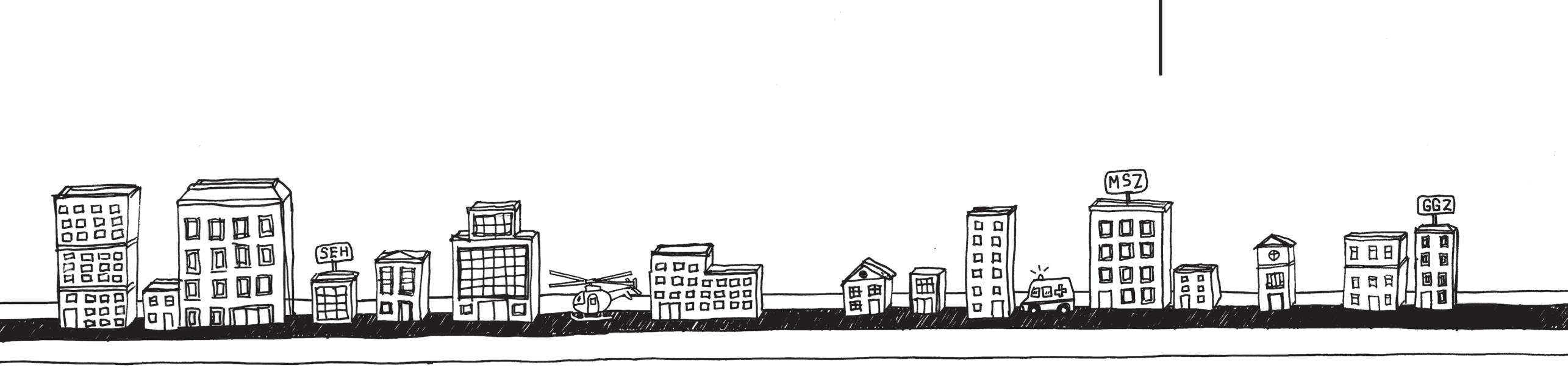
[5.] Zvw stands for the Health Care Insurance Act.

[6.] BRaM (Benchmark Reporting Module) is an online application that maps practice variation in terms of treatment outcomes (https://www.sbggz.nl/BRaM?contentitem=a4a1376e-d62d-4e21-a43b-a46e72ab6b84)

4

Challenging the theoretical model of managed competition: A different perspective on the insurers' role

Submitted as: Ruwaard, S., Struijs, J. Douven, R. Polder, J. Challenging the theoretical model of managed competition: A different perspective on the insurers' role



Abstract

Background: In 2006, the Netherlands introduced a system of regulated competition inspired by Alain Enthoven's theoretical model. Health care insurers are expected to purchase specialist medical care on the basis of price and quality. This paper investigates whether insurers succeed in fulfilling that role.

Method: First we defined the role of the insurers in the system by analysing Enthoven's theoretical model and the insurers' statutory tasks as laid down in the Dutch Health Insurance Act. We then assessed to what extent insurers are able to fulfil their purchasing role for specialist medical care by analysing the purchasing cycle, consisting of four phases: (1) defining and publishing a mission/vision statement, (2) provider–payer negotiations, (3) monitoring and (4) reconciliations. For phase 1 we drew on the insurers' mission and vision statements as laid down in their purchasing policy documents for specialist medical care. For phases 2 to 4, we conducted interviews with officials from various insurers and hospitals to determine how insurers are fulfilling their role in practice.

Findings: The insurers do well in fulfilling their statutory tasks, but in practice they were hampered by several difficulties in meeting the expectations for price- and quality-based purchasing. They pursued various strategies to influence quality, affordability and volume, but practical hurdles existed. These included difficulties in defining quality, the fact that shifting volume is usually at the expense of another provider, and the difficulty of sustaining spending targets in a changing environment.

Conclusions: Ten years after the reform, health insurers do well in fulfilling their statutorily assigned tasks, but still appear constrained in their ability to purchase care based on price and quality. Their role should possibly be reconsidered. In the meantime, government appears to have taken on a stronger role in the system, particularly in facilitating target setting and sustaining pressure on the system.

1. Introduction

Health care spending in OECD countries has been growing in recent decades, albeit at varying paces [1]. Around 2010, health care spending growth was almost zero, but the growth has gradually resumed since then [1]. Some countries among the the Netherlands, have introduced managed competition in the health care system in an attempt to contain cost growth while still maintaining or improving quality of care. The managed competition model is based on Alain Enthoven's model so as to achieve maximum value for both health care consumers and employers [2]. The model assumes that competing health plans purchase high-quality and affordable care on behalf of their insured population. The Dutch health care system is now based on this model, but it is structured rather differently in a number of key elements. The system now comprises three markets: the health care purchasing market, the health care insurance market and the health care provision market. In the purchasing market, private health care insurers contract health care providers on behalf of their insured population. In the health care insurance market, consumers purchase health insurance. In the health care provision market, providers deliver health care to patients.

Within the Dutch managed competition model, the insurer thus operates in two markets simultaneously: the insurance market and the purchasing market. Recent evaluations of the Dutch system concluded that insurers are competing aggressively on the insurance market with many different insurance policies, with varying premiums and provider networks [3], even though the basic benefits package is a comprehensive standard package and the number of policyholders switching between health insurers has been relatively low [4]. Room for improvement exists when it comes to issues like consumer information provision [5].

In the health care purchasing market, insurers contract various providers and adopt different purchasing strategies per care segment. In purchasing specialist medical care, insurers experience difficulties to steer directly quality and affordability [6]. The selective contracting of providers is almost non-existent [7], and the selective contracting of specialist care so as to consolidate services is also limited. Overall, it appears that quality plays a minor [7], although somewhat growing role in the purchasing of health care. This is partly because it is rather difficult to develop quality indicators, and stakeholders are concerned about the reliability of such indicators. The role of quality does appear to be increasing, as smaller quality initiatives have recently started to emerge [6]. According to providers, however, the overall focus of the negotiations between insurers and providers is predominantly on the financial aspects of health care and reimbursement [6, 7]. In the purchasing of specialist care, contracts are mostly based on lump-sum payments or global budgets [8]. Loozen and colleagues have also concluded that the bargaining positions are not balanced, with hospitals tending to have stronger bargaining positions than insurers [9].

Previous research has focused on limited aspects of health care purchasing, and it remains unclear what issues beyond bargaining positions hinder the health insurers in fulfilling their role. Previous research focused on limited aspects of purchasing healthcare, but the health care purchasing is an ongoing process, including different phases such as developing a strategy, negotiating about contract details, monitoring providers' performance and possible reconciliations. Deeper insights into the full purchasing cycle will therefore be essential to understanding where health insurers experience obstacles to fulfilling their role.

The aim of this article is to gain a clearer understanding of how purchasers are fulfilling their role in the purchasing market by analyzing the full purchasing cycle. Interviews about the purchasing of specialist medical care were conducted with both health care insurers and hospitals and the existing literature on the purchasing of care in the Netherlands was reviewed.

2. Research methods and data

Our research methods involved a document analysis and interviews. The document analysis was conducted to elucidate the role of health care insurers in a system of managed competition. Enthoven's theoretical model formed the starting point for our analysis. We next looked into the role of the insurers as laid down in the Dutch Health Insurance Act. We then went on to analyse the document entitled *Onderhandelaarsresultaat medisch specialistische zorg 2014 t/m 2017* (Negotiators' Agreement on Specialist Medical Care in 2014–2017), which outlined intentions agreed by various stakeholders in the health system (health ministry, providers, insurers) to amongst other things contain cost growth [12].

To explore how insurers are fulfilling their role in practice, we began by drawing on the vision/mission statements of the individual insurance companies, as articulated in purchasing documents for specialist medical care. This enabled us to distil how individual insurers intended to fulfil their role in the Dutch system. To uncover how this strategy translated into practice, we conducted twelve semi-structured interviews with insurance company officials (members of managing boards or boards of directors, purchasing department officials or officials responsible for long-term vision) and with providers of specialist medical care (members of sales departments or boards of directors). More specifically, five insurers, and seven specialist care providers (including both general hospitals and teaching hospitals) were interviewed. The interviews were conducted from June 2016 to January 2017. A different topics list was adopted for the insurers and providers, albeit with considerable overlap. Providers' questions related to the strategy of the provider, the negotiation process and contract incompleteness and reconciliations. Insurers' questions related to the insurers' purchasing strategy, the

negotiation process, contract incompleteness and reconciliations, and the monitoring of health care providers. All interviews were transcribed verbatim and coded inductively in MAXQDA 12.

3. What do we expect from an insurer in a managed competition model?

We start by describing the insurers' role according to Enthoven's theoretical model. After which we lay down what we expect from the insurers in the Dutch competition model, as specified in the Dutch Insurance Act and the above-cited Negotiators' Agreement on Specialist Medical Care in 2014–2017.

Theoretical expectations as set out in Enthoven's model

Enthoven defined managed competition as 'a purchasing strategy to obtain maximum value for consumers and employers, using rules for competition derived from microeconomic principles' [2]. The model was originally designed for the US health care system and involves the following key players: a sponsor (an employer, government entity or health insurance purchasing cooperative), health plans and consumers.

In this model, sponsors contract health plans. Sponsors play an important role in the system and are assigned the following tasks: establishing rules of equity (through measures such as guaranteeing access to care and employing 'community rating', whereby all plan enrolees pay the same premium for a given insurance product), selecting health plans (choosing which plans are to participate), managing the enrolment process (e.g. defining procedures for new enrolees, providing opportunities for switching insurers), creating price-elastic demand (making it profitable for plans to reduce premiums) and managing risk selection (preventing parties from avoiding high-risk profiles).

Expectations as set out in the Dutch Health Insurance Act

In 2006, the Netherlands introduced a system of regulated competition based on the principles of Enthoven's model. The primary goals of the reform were to enhance efficacy, improve accessibility and reduce centralised control [10]. Although Enthoven's model formed an important starting point, the design of the Dutch system, as laid down in the Health Insurance Act, manifested some significant differences. The Health Insurance Act defined a different set of players than Enthoven did – namely, private health insurance companies, health care providers and consumers. In the Dutch system, the insurers were to play more active roles in purchasing high quality and affordable care on behalf of their insured populations.

According to the Dutch Health Insurance Act, health insurers must fulfil six statutory obligations, relating to the overall functioning of the system: (1) acceptance obligation (in Dutch: 'acceptatieplicht'), (2) duty of care (in Dutch: 'zorgplicht'), (3) prohibition of

premium differentiation, (4) transparency in offers for insurance policies, (5) financial accountability in accordance standards of the branch (6) and invoice monitoring.[1]

To ensure solidarity, insurers have a statutory obligation to accept all applicants for the basic benefits package; they are not allowed to refuse any individual (acceptance obligation). They may set their own premiums but are prohibited from charging different premiums to different individuals for the basic package. They are permitted to offer supplementary insurance beyond the basic package; they are free to define that package and premium and are under no obligation to accept all applicants for it.

To safeguard the accessibility of health care, insurers have a duty of care, whereby they must both ensure payment for necessary care and ensure that the necessary care is available when needed. They may choose to contract selectively, offering policyholders a choice of providers within a contracted network. Another option is to give policyholders freedom of choice of providers and to offer to find a suitable provider on request.

For the insured population to perform its intended role in the competitive health system, consumers must be able to make informed choices with respect to insurance products. Insurers are therefore required to provide transparency in the policies they offer. Accordingly, insurers must lay their insurance policies down in model contracts (*modelovereenkomsten*) that are made publicly available.

In terms of financial matters, insurers must meet the standards of financial accountability in accordance with this sector. In addition, insurers must monitor the invoices they receive to ensure that the care in question is covered by the patient's policy. Invoice monitoring also helps prevent unjustified payments to providers that do not meet the requirements.

Enthoven and the Dutch Health Insurance Act: Similarities and differences

To clarify the overlap between the Enthoven and the Dutch model, we have juxtaposed Enthoven's sponsor roles with the statutory tasks of the Dutch health insurance companies in table 1, columns 1 and 2. We classified these roles according to the three interrelated markets contained in the Dutch model (the purchasing market, the insurance market and the health care provision market). We found overlap only in Enthoven's sponsors' tasks and the Dutch insurers' statutory tasks in the health insurance market. We found no overlap between the tasks in the health care provision and purchasing markets (see empty cells in column 2). The lack of overlap in the provision market is not surprising, as Dutch insurers are not active in that market. With regard to the purchasing market, there is some overlap in the sense that a sponsor

1 The Dutch Healthcare Authority (NZa) monitors the functioning of the insurer in the system. We follow the six statutory tasks that the Dutch healthcare Authority monitors the insurers on.

contracts a care plan and an insurer contracts a provider, but Enthoven describes only a degree of freedom in contracting care plans and no further concrete actions for sponsors. Moreover, two of the six tasks defined for Dutch insurers in the Health Insurance Act – duty of care and invoice monitoring – do not derive from Enthoven's theoretical model. These are shown in table 1 column 3.

Expectations as set out in the Negotiators' Agreement on Specialist Medical Care

In 2012 – six years after the implementation of regulated competition – the umbrella organisations of insurers and providers of specialist medical care and the Dutch ministry of health signed the Administrative Headlines Agreement 2012–2015 (*Bestuurlijk Hoofdlijnenakkoord 2012–2015*) setting out concrete aims for fulfilling mutual responsibilities with respect to health care expenditures for specialist medical care [11]. Parties shared the ambition to contain medical expense growth of specialist medical care expenditures to 2.5 per cent (excluding wage and price adjustments). To realize this target, insurers were to expand selectively contracted care (by purchasing care on the basis of quality, price and efficacy). The stakeholders additionally agreed to address matters such as reducing practice, concentrating and substituting care, reducing overcapacity, prescribing medicines efficiently and providing safety management systems.

In 2013, a new agreement was concluded covering the period 2014–2017 [12], and a further extension was recently signed covering 2018 [13]). As our interviews were conducted in 2016 and 2017, we provide an overview of arrangements relating to the period 2014–2017 (table 2). We again classify these into the three markets as they exist in the Netherlands. The agreements set out concrete targets relating to various themes: affordability, quality and effectiveness, provision of information, process, equal level playing field (columns 2 and 3). Examples of such targets are a maximum volume growth target of 1 per cent for specialist medical care, the intention to prevent upcoding, acceleration of invoicing and reimbursement processes, and moving towards paying for results.

Table 1. The role of health care insurers in a system of managed competition: Theory and practice

	Enthoven Sponsor actions	Netherlands Insurers' statutory tasks[2]	Additional tasks
Health insurance market	*Coverage* Every eligible person is covered, or at least is offered attractive coverage (including relatively healthy people). All persons have subsidised access to the lowest-priced plan. Coverage is standardised and there is no discrimination with respect to premiums across enrollees. Coverage is continuous (cancellation is not possible). Consumers have an opportunity to switch plans (e.g. annually).	• acceptance obligation • duty of care (payment assured for necessary care) • prohibition of premium differentiation	• monitoring invoices
	Transparency Sponsor should prepare informative materials about the benefits covered, the characteristics of the health plans and locations of providers, and the quality controls in place. In addition, quality-related information (e.g. outcome reporting, consumer experiences with health plans) should be provided and made accessible.	• providing transparency with respect to insurance policies	
	Risk adjustment Premiums are risk-adjusted. That is compensation for plans that faced relatively bad risks, and a fee for those who received relatively good risks.		
	Monitoring switching behaviour Patterns of consumers switching in the insurance market are monitored.		
Health care purchasing market	*Selecting participating plans* The freedom of the sponsor in selecting participating plans will depend on the circumstances. A private employer will have more freedom of action than a public employer, and a public employer will have more freedom than a health insurance purchasing cooperative.	• health care providers contracted by insurers	• monitoring invoices • duty of care
Health care provision market	*Managing risk selection* Monitoring the quality of tertiary care arrangements and monitoring access to specialty care		

2 As the *financial accountability* requirement relates to overall functioning, we could not assign that task to a specific market.

Table 2. Arrangements in Dutch Negotiators' Agreement on Specialist Medical Care in 2014– 2017[3]

	Theme	Concrete goals
Purchasing market	*Affordability*	National volume growth of 1 per cent for specialist medical care in 2015–2017 and 1.5 percent in 2014 (excluding wage and price adjustments)
		Reducing undesirable practice variations
		Monitoring expenses carefully (so that meeting or not meeting targets will be promptly evident)
	Quality and effectiveness	Stricter adherence to protocols (in the purchasing of health care, insurers will incentivise the use of guidelines and ensure care is delivered appropriately and efficiently)
		Preventing upcoding and inappropriate use
		Rewarding better performance and moving towards paying for results
		Arrangements for monitoring (to obtain clarity about progress on agreed arrangements, parties will collectively develop a monitoring instrument that will at least provide insights into service substitution)
		A health ministry plan to address fraud, to be submitted to Parliament in September 2013
	Better information provision	Joint arrangements between providers and insurers for dealing with consumer complaints about invoices
		Efforts to make arrangements between parties for speeding up the invoicing and reimbursement processes for care (provider invoicing preferably within one month after closing s treatment episode and insurer payment preferably within one month of invoice receipt)
		As from autumn 2013, periodic consultations between market parties convened by the health ministry to discuss standardisation to enhance transparency and reduce administrative burdens

3 Table 2 is based on the authors' own analysis. The Negotiators' Agreement on Specialist Medical Care in 2014– 2017 included arrangements that apply to the entire health care system (all three markets). Because the insurers operate solely in the health insurance market and the health care purchasing market, we have not included arrangements applying to the health care provision market.

	Theme	Concrete goals
	Process, level playing field	Contracts between providers and insurers on an individual basis, to ensure a level playing field for providers
		Equal access by equal providers to allocation of resources
		Purchasing cycle preferably finished by 19 November of year t-1
		Information on contracted care available to consumers by 19 November of year t-1
		Open and transparent purchasing strategies, purchasing processes and options for advance payments (simultaneous publication of purchasing strategy for all providers, providers' proposals to insurers in the same time period, equal requirements for equal care)
		Insurer monitoring of providers on efficiency and quality of care
		Performance-based payments to incentivise high-quality care
		Transparent and understandable explanations of insurance policies available to consumers, including a clear overview of distinctions between reimbursement policies (*restitutiepolissen*) and services-in-kind policies (*naturapolissen*).[4] If insurers have contracted care on the basis of price and quality, the purchasing criteria should be clear. It should also be clear to consumers what care is contracted and what is not contracted. Any reimbursement rates for non-contracted care should be clear. For non-contracted providers, insurers are free to decide what share of costs will be reimbursed, but they should be transparent in this regard so that providers know what to expect.
	Exploring controlled introduction of care facilities	Joint exploration by 1 July 2014 of how expensive care facilities can be created
	E-health	Joint decision by 1 January 2014 on how to use potentials of e-health
Insurance market	*Quality and effectiveness*	Improving cost awareness by providing understandable cost overviews
	Better provision of information	Correct invoices
		Improving consumer invoicing by stating at least the diagnosis (first half of 2014)
		Joint arrangements on dealing with consumer complaints about invoices where appropriate
		Improving and expanding IT by mid-2014; improving clarity of invoices (e.g. treatment, data, description of procedure)

4 Reimbursement policies cover full reimbursement for all providers; services-in-kind policies require co-financing for services from non-contracted providers.

	Theme	Concrete goals
	Process, equal level playing field	Informing policyholders about contracted and non-contracted providers by 19 November
		Clear information distinguishing services-in-kind from reimbursement policies in insurers' offers to consumers
		Information on contracted care made available to consumers by 19 November of year t-1
		Transparent and understandable explanations of insurance policies available to consumers, including a clear overview of distinctions between reimbursement policies (*restitutiepolissen*) and services-in-kind policies (*naturapolissen*)[6]. If insurers have contracted care on the basis of price and quality, the purchasing criteria should be clear. It should also be clear to consumers what care is contracted and what is not contracted. Any reimbursement rates for non-contracted care should be clear. For non-contracted providers, insurers are free to decide what share of costs will be reimbursed, but they should be transparent in this regard so that providers know what to expect.

4. Are the expectations of the insurers' role in the system being fulfilled?

In this section we describe whether the expectations as laid down in the Dutch Health Insurance Act and the Negotiators' Agreement on Specialist Medical Care in 2014–2017 are being fulfilled. To do so we draw on literature (for meeting expectations according to the Dutch Health Insurance Act and the Negotiators' Agreement on Specialist Medical Care in 2014–2017). The insurers' mission and vision statements for how the individual insurers intend to fulfill their role and the interviews conducted (for meeting expectations based on the insurers purchasing strategy).

Expectations of Health Insurance Act fulfilled?
The Dutch Healthcare Authority (NZa) monitors whether the insurers fulfil the statutory tasks assigned to them by the Health Insurance Act [5]. It has concluded that they generally fulfil those tasks well. There is some room for improvement in terms of the duty of care and the provision of transparency. Insurers could put more effort, for example, into dealing with complex care and ensuring that waiting times do not exceed maximum standards. Also, despite continuous efforts to improve transparency, insurers could still improve on the information provided on their websites or communicated by telephone [5].

Expectations based on Negotiators' Agreement on Specialist Medical Care fulfilled?
The Netherlands Court of Audit has researched the impacts of various negotiated agreements in the care sectors specialist medical care, behavioural health care and primary care over the years 2012 to 2015 [14]. It concluded that in terms of the financial

target the agreements had very likely contributed to the affordability of the system, but that arrangements such as those on quality and effectiveness appeared to have gained less ground and had therefore achieved less in terms of the system goals.

Expectations based on insurers' purchasing strategies fulfilled?
On the insurers purchasing strategy documents and literature, we identified roughly four phases in the purchasing cycle for specialist medical care: (1) developing a purchasing strategy, (2) provider–payer negotiations, (3) monitoring and (4) reconciliations. In phase 1 insurers individually develop their own vision and mission statements. In phase 2, providers and insurers meet to negotiate about provider–payer contracts. In phase 3, insurers monitor the providers' performance. In phase 4, reconciliations may possibly take place.

We observed that the purchasing of health care is a highly dynamic process, in which many aspects play a part and in which the four phases are somewhat intertwined. Themes that received considerable attention in the interviews were the quality, volume and financial aspects of care. We also found that the focus was very much on the two initial phases, the purchasing strategies and negotiations. Phase 3 played a smaller role in the interviews, and phase 4 applied mainly to the theme of financial aspects.

Table 3 reports our main findings concerning the quality, financial and volume aspects per phase. The sections to follow now will describe the key findings per theme for the different phases.

4.1. Quality aspects

Phase 1. Insurers pursue various strategies to take quality into account in their purchasing strategy. for example, they make efforts to increase transparency about quality of care so that consumers can make more informed choices. In purchasing care, they sometimes used indicators as a motive to contract selectively; that is, they might employ entry conditions which is a set of criteria that providers must meet in order to be eligible for a contract. Alternatively, insurers may choose to apply selective contracting to a subset of medical conditions, with providers having to satisfy specific criteria to be eligible to deliver that particular treatment (such as meeting Netherlands Society of Cardiology NVVC standards for pacemakers [15]). Open-ended contracts may be adopted for segments of care in which providers perform particularly well (as is for instance the case for colorectal cancer [16]). Another route is to work more closely with physicians in pilots. Additionally, offering long-term contracts may help to give parties more room to find ways to improve quality; such long-term contracts may also exist for segments of care.

Phase 2. Although hospitals were currently reporting on several thousand indicators, the use of such indicators in the purchasing of health care remained limited. Several reasons for this were reported in the interviews. One insurance official argued that 'for a great many of treatments there are no adequate quality indicators available'; in addition it appears there is no consensus on how to define quality. And most quality indicators were still process indicators, although outcome indicators were increasingly being developed. Hence, despite the vast number of indicators, the usability of indicators for the purpose of health care purchasing was somewhat limited; for instance, given that there is no consensus on quality, indicators might cause confusion in some cases. As one health care provider observed, 'Sometimes one insurer says you are best practice, [...] and another insurer says "We don't want to contract this anymore."' This could send confusing signals to patients, and one provider mentioned that they had had people phoning because they want to understand what was going on.

With regard to quality indicators, there was a shift away from individual indicators towards indicators developed by professional groups. Two providers reported that insurers did attempt in the beginning to put their own indicator lists on the table. One observed that this was not a very workable situation and that they had discussed with insurers that it would be better to have one set of indicators instead. In 2015, the Dutch health minister announced that insurers would indeed meet with providers and patients to collectively compose a list of indicators for thirty designated health conditions, also known as the ZN standards with reference to the insurers' umbrella organisation Zorgverzekeraars Nederland [17]. Overall, insurers were increasingly relying on standards developed by professional groups.[5] A provider observed that 'really steering on indicators is also entering a new, is slowly starting to emerge to a new phase of "What is really important? [...] and what really determines the quality of life, of a, of a patient, [...] and how can you bring that to light?" '

5 Examples are standards developed by the Oncological Collaboration Foundation (SONCOS) and the Dutch Institute for Clinical Audit (DICA).

Table 3. The four phases of the Dutch health care purchasing cycle in terms of quality, financial aspects and volume

	Quality	Financial aspects	Volume
Phase 1	• Insurers employ various strategies to incorporate quality into health care purchasing (e.g. improving transparency about quality, selectively contracting care on basis of quality, working with providers in pilot projects, adopting long-term contracts).	• Majority of contracts are based on lump-sum or global budget agreements with underlying fees • Insurers pursue various ways of managing costs and affordability (e.g. reducing price variations, prescribing drugs efficiently, preventing fraud, efforts to substitute services, not contracting relatively expensive or unnecessary care, experimenting with new forms of payment).	• Some insurers pursue selective contracting for particular medical conditions (e.g. hip, knee and cataract surgery). • Providers increasingly try to concentrate services (high-complexity care with tertiary providers and low-complexity specialist care with secondary providers).
Phase 2	• Insurers' role with respect to quality is not widely accepted by providers (shift away from individual indicators to indicators developed by the professional groups). • Though many quality indicators exist, their usability for health care contracting is limited. • There is no universally accepted definition of quality of care.	• While the total sum is negotiated first, the underlying fees may be negotiated halfway through the contracting year. • Benchmarking may be used to arrive at market-consistent prices. • Invoices are not accepted until fee lists are approved.	• It is not easy to negotiate volume shifts when that implies that one provider must undergo a budget reduction. • Providers increasingly collaborate with other providers, whereby insurers do not necessarily play an active or central role. • If one provider faces multiple insurers with opposing views on selective contracting, complications arise for which no solution exists.
Phase 3	• Some arrangements are checked using data or input from purchasers		
Phase 4		• Contracting parties jointly trace causes of budget overruns. • Renegotiations are custom-tailored. • Insurers increasingly specify course of action in the event of budget overruns.	

4.2. Financial aspects

Phase 1. Health care costs and affordability were amongst the frequently mentioned focus areas in purchasing strategies. First of all, hospitals were contracted mostly on the basis of a global budget or a lump-sum payment, with underlying fees. Again, insurers adopted various ways of pursuing affordability. One cost-reducing measure was to narrow price differences between providers. By mapping price variation and clarifying why such differences exist, an insurer would aim to make prices more efficient. In addition, arrangements were made on matters such as prescribing drugs. Efforts to prevent fraud in health care costs were undertaken by asking providers to check invoices and by asking patients to check their invoices online. Efforts to transfer care to primary care settings were included, which could improve affordability. Insurers might refuse to contract relatively expensive care or care deemed unnecessary. Experimenting with other forms of payment such as shared savings may contribute too.

Phase 2. While total sums (that is, the global budgets or lump-sum payments) were negotiated first, the underlying fees might be negotiated halfway through the contracting year. In the meantime, advance payments might be possible, as invoices tended to not be accepted without a fee list. With respect to the negotiations, one insurance official noted that benchmarking information (comparing similar providers) helped in countering arguments from hospitals as to why they were more expensive. 'We have figures that can help us in that discussion [...] that we can say, "Well, we compared you, you are actually not, you actually don't have such an elderly population erm, erm, that make [...] that the prices should deviate that much." And that helps.'

Phase 4. Specialist medical care was contracted mostly on the basis of a lump-sum payment or a global budget with underlying fees. However, the health care sector was subject to many changes outside the direct scope of providers or insurers, and these could cause unexpected deviations in volume and or cost levels. Examples are the introduction of new medicines, changes in the system or the closure of nearby providers. These changes might result in different cost and volume outcomes than the contracting parties had predicted beforehand. When a negotiated budget was exceeded, renegotiations might take place in which parties may try to determine the underlying causes of the budget overrun. As one insurance official remarked, 'There is no computer answer, that is always again tailor-made, and the work of human beings and tailor-made, and the relevant question there is "What is the cause of the budget overrun?" ' In some cases the negotiations might lead to additional compensation, with the overproduction possibly reimbursed at a lower rate. As an insurance official pointed out, 'Because with a global budget as a provider you have, er, your fixed costs covered, and you have a little increment [...] going to produce more than we think you, should not pay the full price anymore [...] no, than it must show that you must have hired extra personnel and stuff'.

So even though a lump-sum or global budget had been negotiated in phase 2, the contracting parties might decide in practice to deviate from such targets if circumstances require. An insurance official continued with a metaphor: 'So I always say, it's like a velvet wall [...] If it's not there, we don't know where the wall is, [...] but you mustn't have the illusion that [...] it can block things like a brick wall.' Another official reported that insurers were increasingly specifying what happens in the event of budget overruns [Phase 1].

4.3. Volume aspects

Phase 1. The insurers purchasing strategy may affect volume levels. Two ways for an insurer to for example steer on volume is in the form of substituting care (that is shifting volume from one provider to another) and to selectively contract services (not contracting certain providers that failed to meet specific criteria). One reason for substituting care was to enable patients to receive care closer to home. Substitution could take on different forms, including substitution from secondary to primary settings, from tertiary to secondary settings (with low-complexity care transferred from teaching hospitals to general hospitals) and from hospitals to independent treatment centres (ZBCs). One insurer had specified that service substitution would be pursued only if it was at least budget-neutral. Another way of managing volume was to contract care selectively – that is, to exclude some providers from contracting, or not to contract all types of treatment with every provider – and some insurers indeed chose not to contract the entire spectrum of care with every provider. That applied to a limited number of medical conditions or interventions, including knee prosthesis, hip prosthesis, breast cancer surgery and colonoscopy. The sets of conditions or interventions that insurers chose to contract selectively might differ, as could the sets of criteria used to determine whether those were contracted.

Phase 2. Efforts were indeed made to substitute care. Although theoretically appealing, negotiating a volume shift in practice was not without difficulty. As one insurance official pointed out, if a provider wants to increase volume, that means another provider's volume must decline in accordance to make it budget-neutral. Another observed that a provider who gets a budget increase proposed is more likely to agree than a provider who must undergo a budget reduction – making it somewhat challenging to shift volume levels. The official continued that providers are not obliged to sign a contract: 'Hospital downsizing? Then they'll say, "Then I won't sign the contract [...]." They aren't obligated to sign a contract.' On the other hand, one provider pointed out that the nature of contracts with global budgets did not facilitate substitution in the past, but that insurers were now increasingly growing into their role 'In my view, insurers weren't taking on their role to facilitate this, that's slowly starting to come, [...] also because we're increasingly gaining insights about well and beforehand making such plans together'. Health care providers were increasingly seeking cooperation with other providers; hospitals were seeking cooperation with other hospitals as well as

with other types of providers such as primary care practices or rehabilitation centres. Collaborations tended to concentrate mostly around particular medical conditions. Collaboration could assume various forms, such as multidisciplinary consultations, patient referral, aligning care pathways and setting protocols. Insurers did not always play direct roles in such collaborations.

With regard to selectively contracting care, different insurers had adopted different views as to what types of care were eligible for selective contracting. As insurers might differ as to whether they wanted to selectively contract a particular health condition or not, one provider observed that this could lead to practical difficulties: providers did not wish to select patients based on where they were insured. There is no solution in the current system for how to deal with different insurers adopting different policies in this regard, because collusion is not allowed.

Even though selective contracting with respect to particular medical conditions applied to a limited number of conditions, it did seem to have had an effect. One insurance official noted that, as a result of selective contracting, 'there are multiple providers who have stopped, or have sought cooperation, or one is doing this, the other is doing that'. In addition, selective contracting has perhaps also put some pressure on the remainder of care too. As one provider observed, 'With a couple of those conditions, you use them as metaphors, also in-house, to say "Well it's no longer evident that everything is purchased by all insurers, so you'll have to do your best to price technically in relation to costs [...], do better, or sometimes in quality do better." '

5. Discussion and conclusions

This article sought to gain a deeper understanding of the Dutch health care purchasing process and of the roles and expectations of health care insurers in a regulated competition model. In 2006, regulated competition was introduced in the Netherlands. As laid down in the Dutch Health Insurance Act, the health insurers are expected to play a more active role in obtaining high quality health care at an affordable price on behalf of their insured populations. That role proves difficult to fulfil in practice, although progress is being made. First of all, it appears as though health care purchasing on the basis of quality is difficult to execute in practice, despite the vast number of quality indicators being reported. Instead, insurers are increasingly working on improving quality on a project basis. Secondly, although the selective contracting of care for certain health conditions has resulted in some shifts in volume across providers, it has so far been applied to only a handful of diagnoses. And thirdly, affordability is rather difficult to manage in a changing environment such as the health care sector.

From our results, we find that Dutch insurers fulfil some of the roles that Enthoven envisioned for the 'sponsor' in the health insurance market, in particular the roles of safeguarding health care coverage and providing transparency. The remainder of the sponsor roles is with the Dutch government. The Netherlands appears to have taken on a system rather different to that described in the theoretical model. That made it difficult for us to draw on the model to determine which tasks are better assigned to insurers or to government. But ten years into the reform, we may now draw some conclusions based on the experiences thus far with the roles of insurers and government.

The insurers' role.
The insurers perform well when it comes to executing the statutory tasks that were assigned to them [5]. However, when it comes to meeting the expectation of purchasing care on the basis of price and quality, it gets rather complicated. Starting with the fact that the Dutch Health Insurance Act does not specify exactly how this ought to be done. At the same time tough when parties do attempt to fulfill this role, considerable resistance arises. In the negotiations with health care providers, for instance, we saw a shift away from insurer-specific quality indicators towards indicators developed by professional groups. The uptake of insurance products that provide limited coverage for non-contracted providers is low [4], consumers apparently prefer not to be confined to a selected number of providers. In the discussion surrounding article 13 much resistance in bringing down the emerged to the proposed lowering of the reimbursement rate for non-contracted care. The upper house of the Dutch Parliament ultimately decided against bringing down the reimbursement rate. Hence, despite the several attempts that have been made, insurers encounter substantial resistance from various parts of the health care system.

In 2015, the Netherlands Institute for Health Services Research (NIVEL) conducted a survey on the relationship between Dutch consumer confidence in health insurance companies and consumer perceptions of the insurers' tasks [18]. It found that a share of consumers did not want insurers to select providers and did not want insurers to negotiate on quality. This raises the question of whether we know what we expect from this party, and whether we want insurers to contract care on the basis of quality and price, as stipulated in the Health Insurance Act.

Ten years into the reform, we must perhaps decide whether we want to afford insurers the latitude to perform that task, or otherwise whether we might want to reconsider the role we assigned them. Their task seems meaningful, but it is feasible only if the insurers have room to carry it out. The challenging part here is that we cannot force the market parties in the system to allow the insurers that room, we cannot force the uptake of limited insurance products and we cannot force the acceptance of individual quality indicators in the purchasing process between private parties. Nonetheless, we

can facilitate them in some cases, for example by bringing down the reimbursement rates for non-contracted care or imposing minimum price differences between different insurance product types (as has been done in Massachusetts [19]).[6]

The government role.
The Dutch Health Insurance Act formulated the 6 statutory tasks and the expectation of contracting health care on the basis of quality and price. These tasks and expectations are very broad, however, and in 2013 parties felt the need to sign the Negotiators' Agreement on Specialist Medical Care in 2014–2017, leading to the formulation of more concrete goals. Whereas the statutory tasks predominantly apply to the insurance market, we observe a shift in the focus of the arrangements in the Negotiators' Agreement towards greater emphasis on the health care purchasing market than on the insurance market. According to the Netherlands Court of Audit, such agreements likely helped contain cost growth in the period 2012–2015, whereas other arrangements on issues such as care substitution and drug prescribing were unlikely to have contributed, because not enough progress had been made. The court concluded that linking such agreements to financial targets would improve their efficacy, and they recommended a stronger role for the government with respect to the execution of such agreements [14].

Alain Enthoven did not favour government-imposed budgets, as those were not thought helpful in reallocating resources efficiently [2]. Regulators would be unlikely to favour closing down providers or insurers. Enthoven believed that the market was the only place where such downsizing can take place. Should government intervention be needed, he recommended more specific tools that address problems more directly, such as reducing insurance coverage, increasing co-payments or acting against cartel formation. Although the Dutch Negotiators' Agreement on Specialist Medical Care in 2014–2017 is not entirely in line with Enthoven's model, it does seem to be a more pragmatic solution to facilitate setting things in motion. At least for now, the role of government in the Netherlands appears to be leaning towards setting more concrete targets and putting more pressure on the system.

Limitations.
Our study comes with some limitations. First, it is limited to the purchasing of specialist medical care. In a system of managed competition, insurers purchase all types of care, including primary care and behavioural health care. As insurers tend to adopt different purchasing strategies per care type, the impact they have with their strategies on quality and affordability of one type of care may not be generalizable to other segments.

6 In 2010, a law was enacted in Massachusetts requiring that health plans (active in the segment for individuals and smaller businesses) provide at least one tiered-network or limited-network option (at a minimum of 12-per-cent price difference compared to other options that are similar but do not limit provider choice).

Hence, our conclusions on the purchasing of specialist medical care are not necessarily generalizable to the entire spectrum of care.

Second, we spoke with a limited number of providers and insurers, and the interviewees had different functions in their organisations (board members, purchasing department, sales department or those responsible for long-term vision). The views of different people within one organisation may differ to some degree. Our study therefore gives merely an impression of the purchasing of care; it is rather difficult to get a broad view of such a dynamic market, and this is therefore just a first attempt.

Conclusions.
After ten years into managed competition in the Netherlands, health insurers are evolving in their roles but still appear persistently limited in their ability to fulfil the role of 'critical purchasers', as was initially envisaged. Rather than opting to alter the managed competition model, we may want to give insurers more space to fulfill their intended role, and at the same time we might reconsider what we expect from this party. In addition, government could take on a larger role than first envisaged, helping to set more concrete goals and putting more pressure on the system.

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Appendix 1

In the Dutch health care purchasing market, nine private health insurer concerns [20] contract healthcare providers on behalf of their insured populations. The four largest insurers collectively had a market share of 88.5 per cent in 2016 [20]. Although insurers were not obliged to contract all providers, the government mandates that they reimburse the majority of the medical expenses for non-contracted care. To control cost growth, the government had introduced medical expense caps for specialist medical care providers, primary care providers and behavioural health care providers. In addition, it had structured the purchasing market for specialist medical care by defining product codes and introducing maximum fees for selected codes.

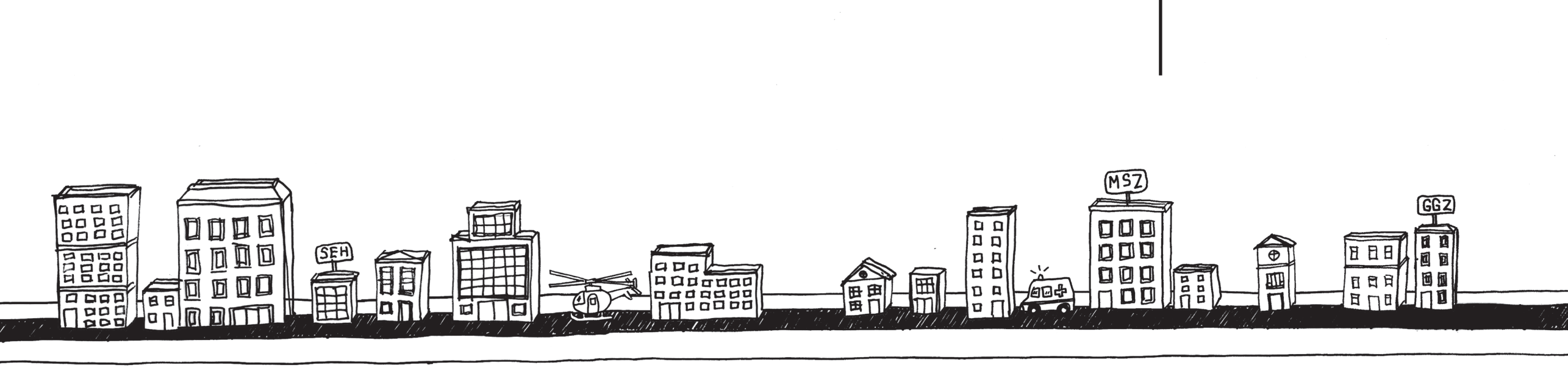
In the health insurance market, residents of the Netherlands purchase insurance policies from health insurers. Roughly three types of insurance products exist: services-in-kind policies (*naturapolissen*), reimbursement policies (*restitutiepolissen*) and combination policies (*combinatiepolissen*) [20]. Under a reimbursement policy, the medical costs are covered for non-contracted as well as for contracted health care providers. Under a services-in-kind policy, only contracted care is fully reimbursed, and non-contracted care is co-financed. A combination policy embodies features from both other types [20]. If consumers want to switch insurance products, they must make that known by 31 December each year and purchase a new insurance product before 1 February. The basic benefits package, as defined statutorily by government, is quite extensive and is mandatory for all Dutch citizens. Insurers are not allowed to reject any applicant for the basic benefits package [20], though they may do so for the supplementary insurance packages they offer beyond the statutory package. Government has also set up a risk equalisation scheme to ensure that health insurers are not disadvantaged or advantaged by their respective risk profiles.

In the health care provision market, providers deliver health care to patients. Various types of health care providers offer specialist medical care, including general hospitals (*algemene ziekenhuizen*, of which there were 71 in 2016), academic medical centres or teaching hospitals (*universitair medisch centra*, 8 in 2016), independent treatment centres (*zelfstandig behandelcentra*, 229 in 2016) and specialist hospitals (*categorale instellingen*, 76 in 2016) [21]. In the course of each year, health care providers must report on quality indicators to various institutions, including the Dutch Institute for Clinical Auditing (DICA) and the Dutch Health Care Inspectorate (IGZ).

5

Key drivers of payment reforms: Transferable lessons from the Alternative Quality Contract

Submitted as: Ruwaard S., Struijs J., Douven R., Polder J. Key drivers of payment reforms: Transferable lessons from the Alternative Quality Contract



Abstract

Provider–payer contract design can contribute to achieving cost containment and quality improvement in health care. An example of such a contract is the Alternative Quality Contract (AQC). The aim of this study is twofold: (1) to identify the AQC's key drivers of success, and (2) to draw transferable lessons for private health insurers in other countries. This study is based on semi-structured interviews with the insurer, AQC providers, researchers that were familiar with the AQC, and government representatives. The literature on the AQC was also reviewed. We conclude that the key driver of success is that providers are *incentivized and able* to steer on high-quality and affordable care. We next draw three context-independent transferable lessons with respect to the implementation strategy: (1) implementing the reform on a large scale, (2) focusing on getting the strongest providers on board first and (3) starting with generous, multiple-year contracts. We also draw four context-dependent lessons that relate to the impact of the contracting environment on the potential success of the reform. These lessons involve (1) prospectively defined populations, (2) mandatory referrals from primary care physicians, (3) market structure (4) and legislation and regulations. We conclude that a payment reform similar to the AQC can successfully be introduced in other settings if providers are incentivized and able to steer. This would not require modifications to most current health care systems.

1. Introduction

Countries are increasingly looking at ways to improve quality of care while containing the growth in health care spending. In some countries, a purchasing entity, be it a private insurer or a public payer, contracts providers to deliver health care on behalf of the people it insures. Providers and payers make contractual agreements about the quality, volume and price of the care to be delivered. These provider–payer contracts may impact health system goals such as quality, accessibility and affordability of care. As of yet, however, it is unclear how contract design can aid in achieving goals such as quality improvements and cost containment.

In the United States and in Europe, a great deal of experimentation is taking place with regard to contract design, in an attempt to improve quality of care while containing cost growth. Examples include bundled payments for chronic care in the Netherlands [1, 2], population-based integrated care such as Gesundes Kinzigtal in Germany [3] and various accountable care organisation (ACO) reforms in the United States [4]. This paper studies the Alternative Quality Contract (AQC), which has shown promising results with respect to quality improvements and cost growth reductions over a four-year follow-up period [5]. Chernew and colleagues [6] have extensively described the AQC payment model. In brief, the model comprises a five-year contract based on a global payment, and it includes a two-sided risk and a pay-for-performance component. A detailed description of the AQC payment model is provided in appendix 1. Up to now it was unclear what the AQC's key drivers of success are and what other countries can learn from that success [4, 7, 8].

The aim of this study is twofold: to identify the AQC's key drivers of success and to explore whether such drivers are transferable to health care systems in other countries. Our study is based on ten interviews with key stakeholders to gain, aimed at gaining a deeper understanding of the payment model design and of how the AQC works in practice. Interviews were conducted with a range of parties in the greater Boston area, including one interview with an official of the insurance company Blue Cross Blue Shield of Massachusetts (BCBS), four interviews at different provider organisations that are working with the AQC, four interviews with researchers familiar with the AQC, and one representative of Massachusetts government. All interviews were face-to-face and took place in April and May 2014. In addition to the interviews, we reviewed the literature on the AQC.

This paper starts with a brief background section on the Massachusetts health care system (section 2), followed by a description of the AQC results in section 3. Section 4 derives the key drivers of AQCs success. Section 5 draws some transferable lessons from the AQC experience for private insurers in other countries. The paper ends with a discussion and conclusions.

2. Background: Massachusetts health care system

As from 1991, the Massachusetts health care system has been based on regulated competition, whereby payers and providers negotiate over fees. Health care payment rates had formerly been regulated by the state. Deregulation took place because it was believed that the market would do a better job in containing costs than the government could [9]. Nonetheless, health care costs have remained relatively high, Massachusetts being one of the most expensive US states [10]. Recently, the Massachusetts health care market has been subject to several new reforms in a further attempt to contain cost growth. Important aspects of the reforms include expanding insurance cover, increasing transparency, regulating premiums, introducing a cap on total medical expenses, and encouraging adoption of alternative payment methods (APMs) in Medicaid [9].

The Massachusetts health insurance market comprises both public payers (Medicare, Medicaid) and private payers. In 2013, the four largest payers in the commercial market were Blue Cross Blue Shield (BCBS), Harvard Pilgrim Health Care (HPHC), Tufts and United. These payers collectively hold 76 per cent of payer membership (with BCBS holding 40 per cent), making for a rather concentrated insurance market [10]. The provider side of the market is also rather concentrated, with four provider systems receiving almost half of all provider payments, and the largest provider system receiving just over a quarter [10].

In Massachusetts, most payers still pay providers on a fee-for-service basis, although several payers have been experimenting with APMs in both the public and the commercial markets. In 2013, 34.3 per cent of all people enrolled in the commercial market were covered under an APM [11]. The most common form of APM in this market employed global payments [11]. Blue Cross Blues Shield's Alternative Quality Contract (AQC) is an example of such an APM.

3. AQC results: Quality improvements and reduced spending growth

Since the introduction of the AQC, several studies have evaluated its impact on quality and medical spending. Overall, the evaluations show that AQC groups were associated with greater quality improvements and reductions in spending growth as compared to non-AQC groups. AQC groups enjoyed greater quality improvements than the control group, with increases of 3.9 percentage points in chronic care management, 2.7 in adult preventive care and 2.4 in paediatric care [12]. AQC groups experienced reduced cost growth rates of 1.9, 3.3 and 6.8 per cent after one, two and four years, respectively, as compared to non-AQC groups [12, 13]. In the first year of implementation, savings relied mainly on changes in referral patterns, with physicians increasingly referring patients to lower-cost providers. After four years, savings were explained by a combination of price

reductions (60 per cent) and reduced utilisation (40 per cent) [12]. Savings exceeded the incentive payments (which included bonuses and infrastructure payments) for the first time in 2012 [12].

In 2011, Mechanic and colleagues conducted a study that focused on the providers' experiences with the introduction of the AQC [14]. Based on interviews with providers that were working with the AQC, and two who were not, the researchers concluded that, after introduction of the contracts, some of the aspects providers have put emphasize on include: investing in the necessary infrastructure needed to improve quality scores, referring patients to more affordable providers and managing high-risk patients. Whereas the Mechanic article focused on the provider side of the payment reform, we take a somewhat broader view, focusing on the key drivers of the contract and on what payers can potentially learn from introducing a similar payment reform. We aim to ascertain what key drivers led to the quality improvements and cost growth reductions. Identifying the key drivers will enable us to draw transferable lessons for private insurers in other settings and countries.

4. Key drivers of success: provider incentive and ability to steer on quality and affordability

Under the AQC, providers have the *incentive* and the *ability to steer* on high quality and affordable care. We identify three factors that gave providers' incentives to steer and three that facilitated their ability to steer.

4.1. Incentives to steer

First, incentives for AQC groups to steer on high-quality and affordable care stem primarily from the payment model design – global budgets in combination with shared-savings component linked to quality improvement. Accountability for both cost and quality creates an incentive to offer effective care while curtailing utilisation of unnecessary care. More specifically, AQC groups are incentivised to ensure that their patients receive the right types of care delivered at the right time, at the right facility and by the right physician[15]. This has the potential to be both quality-enhancing and or cost-saving. The incentives stemming from the payment do depend on the relative size of the reward, which therefore has to be sufficient to incentivise a provider.

A second incentive for AQC groups to steer is facilitated by having a prospectively defined population. Given that the AQC group members know in advance for whom they are accountable during the contract period, they have an extra incentive to proactively manage this population. Such incentives may be weakened in schemes where the definitive population is determined retrospectively, as in the accountable care organisations run by the Medicare Shared Savings Program, as uncertainty about a provider's population lowers their expected reward for proactively managing patients [16].

As a third incentive, leadership plays an important role in transferring group-level incentives to individual physicians. Whilst the organisation-level incentives stemming from the payment model may be to steer on affordability and quality, the financial incentives at the physicians' level are not necessarily in line with the contract goals. Physicians are paid mostly on a fee-for-service (FFS) basis, thus incentivising volume.

AQC groups have different ways of getting physician' incentives in line with the group goals. Some groups have physicians' bonuses to steerage, or they pay visits to physicians who make relatively frequent referrals to other providers. One researcher observed that behaviour partially derives from the prevailing culture, and changing that culture is difficult; providers are still trying to work out how to do this. As an insurer's representative noted, 'We have not been able to isolate one factor or multiple factors that appear to help do better. The biggest differentiator is engaged leadership – engaged and respected leadership.' It takes strong leadership to overrule financial incentives at the individual level and get physicians to act in line with group-level incentives instead. The representative continued, 'You could have a rough provider who decided "I'm just going to bring every patient in for every single thing". Then it becomes dependent on the engaged leaders of the group to say, "You know what? You can't do that because you're disadvantaging everybody else", and so it's a layered model.'

4.2. Ability to steer

A first key feature that enables the proactive management of patient populations is the requirement that an assigned primary care physician (PCP) provide a referral for specialist care. This gives the PCP an opportunity to discuss the patients' choice of provider. Even though patients are free in provider choice, a PCP may be able to help patients make more informed choices and/or may refuse a referral to a specific provider. Some groups are strict with regard to referral outside the network (e.g. subjecting referrals to peer review), whilst others are less rigorous. In addition, the extent to which patients follow a PCP's recommendations will also depend on the PCP's negotiation and persuasion skills and the patient–physician relationship. Relying on the patient–physician relationship may, in fact, prove a more useful instrument than laying down strict rules within the organisation. 'I worked in two systems on the provider side. One had hard rules about "You can't refer outside the system and if you do you've got to go through this jury of your peers (…)". They had more leakage than the other group I worked (…), which was basically work on the relationship (…), which is much more effective' – so reported an insurer representative. Also, a patient's historical provider choice may influence future provider choice; as one provider observed, 'Obviously you respect long-standing relationships and patients that are mid-treatment, (…) It took us three years (…) to move from provider (…) to provider (…).'

A second important feature that enables the managing of a patient population is the availability of sufficient and relevant data, and the analysis of data on practice variation, quality indicators, claims data and information on patients' whereabouts. Proactively managing this population – for example, making sure patients receive appropriate post-hospital care and no unnecessary care – requires that providers have information on patients' whereabouts. As one provider explained, they receive all the referrals from the insurer, and a case manager then goes over the referrals. If, for example, someone has a follow-up appointment at a provider outside the network, they will give them a call and try to reschedule the appointment to a provider inside their network. The same provider states, that they will use claims data with quality info to make patients receive appropriate follow-up care.

A third key feature is that both the incentives and the ability to work proactively are further encouraged and strengthened by several forms of insurer commitment. The first is the provision of reports. At the same time tough, other payers are increasingly sending such reports as well, and these tend to be formatted differently. Some providers are therefore carrying out such analyses themselves. BCBS nonetheless continues providing data on practice variation, as the insurer representative went on to say: 'We think there is even value in doing this even if the group is doing it themselves, because they see us as a partner and a collaborator, rather than an adversarial contracting opponent.'

In addition to the reports, BCBS also transfers data and knowledge via seminars and forums. The several channels through which data is transferred have an important benefit, as they bring people together and create a sense of shared commitment towards improving the value of care. The insurer has thereby also helped physicians learn to be better negotiators, which is useful when physicians discuss provider choice with their patients. 'We think that negotiation skills is really what is going to matter when you've got a challenging patient in front of you; it really is a negotiation that you're doing', argued an insurer representative.

To summarise, under the AQC, important factors that help strengthen a provider's incentives and ability to steer include (1) the design of the payment model, (2) a prospectively defined population, (3) leadership, (4) requiring referrals from an assigned PCP, (5) data availability and (6) insurer commitment. This does not imply that simply satisfying these six conditions would guarantee a successful payment reform in other countries, nor that creating the incentives and the ability to work proactively can solely be achieved by fulfilling these six conditions. In the next section we therefore draw transferable lessons for successfully implementing similar payment reforms in other settings and countries.

Table 1. Key drivers of Alternative Quality Contract's success

Incentive to steer	Payment model design
	Prospectively defined population
	Engaged and respected leadership
Ability to steer	Requiring a referral from an assigned PCP
	Data availability
Incentive and ability to steer	Insurer commitment

5. Seven transferable lessons: AQCs potential key drivers in other countries

Based on interviews with several key stakeholders, we derived seven transferable lessons from the AQC experience. The lessons outline how private health insurers in other countries could implement a payment reform that relies on the success factors of the AQC – incentives and ability to steer on quality and affordability. We draw context-independent lessons and context-dependent lessons.

5.1. Three context-independent transferable lessons

Three context-independent lessons from the AQC relate to the implementation strategy of a payment reform that relies on a steering mechanism.

First, the payment reform is likely to be more successful if implemented on a large scale, in terms of both the number of providers and the number of patients. Being accountable for a large patient population is a way of risk diversification for a provider. A large population requires a large provider group with a sufficient number of PCPs (as the population is defined as the sum of all patients assigned to a PCP). The success of such a group of providers increases with provider–provider alignment. It is easier for an individual provider to do well under such a risk contract if other providers within the organisation also have incentives to contain costs and improve quality. As a representative of a provider group pointed out, 'Our most productive relationships with our hospital partners are ones that where the hospital has a very strong, organised physician group that is working towards the same end that we are. You know, because if we are just 10 per cent of a hospital's discharges and we are the only ones talking about what is the average cost per discharge and what is the 30-day readmission rate and what is the infection rate, you know you're the exception not the rule.' Furthermore, if changes must be made to the ways care is delivered, then the share of the care to which that applies has to be large enough to enable such a change. In addition to the benefits of having a large provider group for purposes of risk diversification, a payment reform will also benefit from the contracting of multiple AQC groups. Because, under AQC 2.0, the spending benchmarks of the AQC groups are based on regional spending, all groups are competing against one another in an attempt to beat the benchmark.

Having multiple groups operating under an AQC creates more downward pressure on the benchmark, and hence on total spending.

A second lesson is that – given that it may take some time to implement a reform – it may be advisable to focus first on getting the strongest providers (financially and/or in terms of market power) 'on board'. Implementing a reform is a process that requires considerable time and effort, which may make it difficult to get all providers on board at the same time. In that case, the insurer may want to focus on getting the strongest providers to sign the payment reform first. The cooperation of those providers in particular is important in that they play an important role in the reform's ability to contain cost growth. If the most expensive players in the market are not incentivised to curb spending growth, then the reform will be less successful in containing it. At the same time, given their market power, the strongest providers may be the most challenging parties to convince. Another benefit of starting with them is that they are the parties most likely to be able to bear the risks associated with the contract, given that they manage larger populations.

A third lesson is to start with generous, long-term contracts. As payment reforms generally require timely and costly investments, the insurer must somehow make the payment reform be mutually beneficial. The insurer may convince providers to join the payment reform by offering long-term contracts and providing financial compensation. An interviewed researcher said this can be seen as an investment in reengineering, to get providers to participate and give them the resources they need to change their care delivery models. This requires that contracts be of long enough duration [17], as it is risky to make long-term investments if there are doubts about next year's contract and its details. Also, the insurer may have to offer financial compensation, in the form of a generous budgets, fees or bonuses, to cover the investments. Financial compensation may further be needed to convince parties to join, as providers may be hesitant to take on a contract of such lengthy duration and its associated risk stemming from uncertainties.

After the necessary instalments are in place and the system is working properly, it may no longer be necessary to offer additional compensation. After the strong providers are on board, the insurer must try to get the remaining eligible providers to join the payment reform. Many remaining providers are in small, single or group practices, which face more challenging paths towards obtaining the staff, infrastructure, information technology and managerial experience to manage a risk contract for a population of patients. Starting with long-term contracts is still desirable, although the degree to which offering high financial compensation is still necessary to get providers to sign depends on the market power of those remaining providers.

From these lessons, it follows that the insurer must have sufficient leverage vis- à-vis providers, as well as sufficient financial resources, capacity and must be willing to take

on risks in implementing the payment reform. The fact that the reform is best rolled out on a large scale, and the fact that convincing providers to join entails starting with generous, long-term contracts, implies that a considerable investment from the insurer is required. The insurer must have the leverage to convince providers to join, the financial resources to invest in them and the capacity to provide the non-financial support.

5.2. Four context-dependent transferable lessons

We also derived four context-dependent lessons, which relate to key characteristics of the contracting environment that play a role in the potential success of the payment reform. Unlike the context-independent lessons, these lessons fall largely outside the scope of the contracting parties.

First, PCP assignment is important, as it is used to define the population prospectively (key driver 2, see table 1). In Europe, half of the countries already require referrals from a PCP (whether assigned or not) [18]. However, in some countries, or for certain insurance products, it may not be feasible to have patients be assigned to a PCP. In that case, providers must thus find alternative ways to define its population prospectively, or at least use historical data to derive a likely cohort of individuals for whom they will be responsible. If the population cannot be defined on the basis of PCP assignment, then a population might be defined based on historical costs (for year t-1), which is another commonly used method in accountable care organisations [16]. In that case, a patient is attributed at the start of a year to the provider for whom that patient incurred the majority or plurality of spending in the preceding year (in terms of either total spending or primary care spending).

Second, PCP assignment is also used to determine from which PCP the patient referral is required (key driver 4, table 1). In the absence of assigned PCPs, providers must find alternative ways to create opportunities to talk to patients about provider choice. Instead of requiring referral from an assigned PCP, requiring a referral from any PCP within the network may pose an alternative solution. Non-assigned PCPs may not, however, be equally capable of influencing patients in their provider choice, as the patient–physician relations may be stronger in longer-term relationships. In practice, though, patients not formally assigned to a PCP tend to keep visiting the same PCP anyway [18]. All in all, it is unclear whether requiring a referral from any PCP will yield similar results to those involving assigned PCPs.

Third, the market structure must allow for steering. Market structure must be organised such that a sufficient number of competing providers share the same geographic market to make steering possible. Effectively, all providers are competing for referrals from the PCP, and they will acquire referrals by offering high-quality and affordable care. However, given that PCPs may have a slight preference to steer patients towards

providers within their own AQC group, the providers within that particular AQC group will enjoy a competitive advantage within their own patient population vis-à-vis outside providers. In response, some outside providers proposed a reduction in their fees in order to be in a different tier. It is this competition between providers that resulted in some providers voluntarily reducing fees to maintain their competitiveness. In turn, such fee reductions help competing AQC groups to stay within their budgets. As AQC groups have a financial incentive to stay within their budget, and the spending benchmarks are based on regional spending by neighbouring organisations in the region, all AQC groups are effectively competing with one another to beat the benchmark. These forces thus apply downward pressure on both the budgets and the fee-for-service rates. This makes the competitive environment a crucial factor in driving down costs and increasing quality.

Fourth, legislation and regulations will need to support, rather than hinder, the introduction of such a payment model. It is also important that laws and regulations create a level playing field [19]. Furthermore, antitrust legislation must allow for the formation of providers or provider groups that are large enough to bear the risk of such a payment model, while at the same time keeping price competition alive in the market to discourage monopoly pricing. Privacy legislation and regulations must allow for data exchange between providers and insurers. [19].

An additional issue discussed in negotiations in Massachusetts was a medical expense cap that had been introduced in state law. One provider argued that the cap was too broad, another that it had had a framing effect. Recent reforms had also improved price transparency in the market. One provider reported that he had consulted the reports and had put forward the large price variation as an argument in the negotiations. A final issue is that the Massachusetts health care system is structured such that there is both a private and a public market. One researcher observed that the pricing of the public payers may have spillovers into the private market, whereby parties may negotiate fees that lie, for instance, a certain percentage above Medicare prices. The same goes for physician compensation schedules. But having different types of contracts under different programmes and payers, which causes for mixed incentives. In such ways, public payers may indirectly influence outcomes in the private market.

In sum, the context-dependent lessons relate to key characteristics of the health care system in question (PCP assignment), the competitive environment (number of competing providers sharing a geographic market) and the regulatory environment (including antitrust and privacy legislation). Although the contracting parties may find other ways to create opportunities to talk to patients about their choice of providers, and although alternative options also exist for defining a patient population ex ante, the organisation of the market structure and of public policy, laws and regulations are not subject to alternative options. They thus fall outside the scope of the contracting parties. Market structure and public policy, legislation and regulation are therefore

considered preconditions for implementing the reform.

Table 2. Transferable lessons from the Alternative Quality Contract

Context-independent	
Implement the reform on a large scale	The payment reform is likely to be more successful on a large scale: both in terms of scale of providers and scale of patients
Focus on getting the strongest providers on board first	If it is not possible to get all providers on board at the same time, the insurer may want to focus on getting the strongest providers on board first
Start with generous and long-term contracts	As payment reforms generally require timely and costly investments, the insurer must somehow make the payment reform mutually beneficial, by starting with generous and long-term contracts
Context-dependent	
Population defined based on PCP assignment	PCP assignment is used to define the population prospectively (key driver 2)
Requiring a referral via assigned PCP	PCP assignment is used to determine from which PCP the patient requires his/her referral (key driver 4)
Market structure	The provider market structure must be organized such that there is a sufficient amount of competing providers sharing a geographic market to make steering possible
Supportive laws and regulation	Laws and regulation may not interfere with introducing the payment model (antitrust law, privacy law, etc.)

PCP= Primary care physician

6. Discussion and conclusions

The AQC results showed that provider–payer contract innovation can contribute to achieving system goals such as cost containment and quality improvement. Nevertheless, payment reforms take time and require considerable effort and commitment from both providers and insurers. The results suggest that achieving net savings may require years of investment before provider organisations have redesigned their health care models so as to generate meaningful reductions in their budgets. Insurers can play an important role, however, by supporting providers to bring this change about and be successful under such a contract.

The key driver of AQCs success appears to be the creation of the necessary incentives and ability to steer on high quality and affordable care. Although other routes, such as prescribing medicines cost-effectively, may also contribute to cost reductions and quality improvements, we believe that the effective management of patient populations has the greatest potential to effect quality improvements and cost growth reductions under such provider–payer contracts.

The condition that patients remain free with respect to provider choice is a challenge, and at the same time the selling point of the model. Given that a provider's success partially relies on the extent to which it is able to steer, this freedom of choice aspect makes the model challenging for providers. Providers will always have to accept some 'leakage', as existing patient-physician relationships or patients that are in mid-treatment may make it difficult or undesirable to steer patients elsewhere. Nonetheless, the free-choice-of-providers condition remains a selling point of the model, as consumers appear to increasingly value that freedom. For example, in Massachusetts the number of health maintenance organisation (HMO) products has increased and the number of preferred provider organisation (PPO) products has declined in recent years [20]. In view of the patient preference for freedom of choice, the AQC model perhaps poses a good intermediate solution, giving providers the incentive to steer, and will probably with success for a proportion of their patients), while still safeguarding free choice.

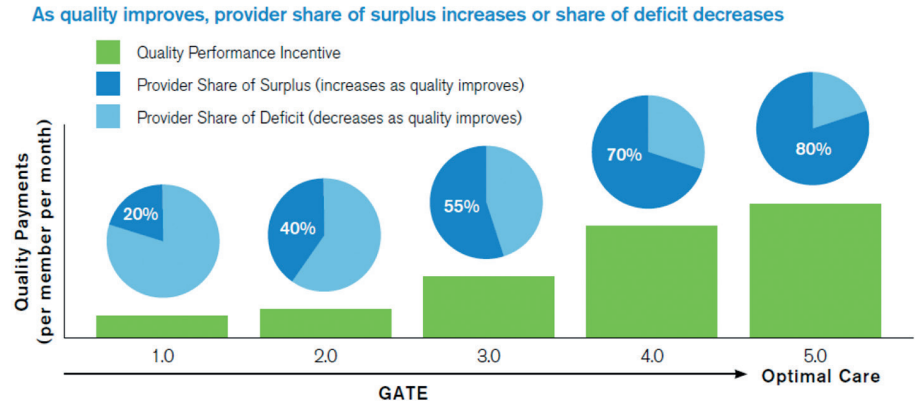
This paper drew seven transferable lessons for private insurers. In some countries, however, care is purchased by a public payer. For private parties, the only two preconditions are market structure and public policy, legislation and regulations. Given that government influences the regulatory framework, only market structure could pose a possible barrier in implementing reforms. Although anti-trust legislation affects market structure, market structure is difficult to change in the short run. The potential of reforms to boost quality may be equally effective when implemented by a public payer, although ability of a payment model to contain cost growth may be weakened if the public payer is not able to price-differentiate between providers for similar treatments. Under the AQC, the savings were achieved by both reduced service utilisation and reduced prices [5]. If a public payer cannot differentiate prices, providers have limited possibilities to achieve savings by referring patients to less expensive providers (of similar quality). They can, however, curb costs by reducing utilisation.

Under the AQC, it is inevitable that providers are aware to some extent of their competitors' prices, because they are responsible for paying the bills of their patient population. It is unclear, however, how price transparency might be affecting prices in the long run. Price transparency could result in either a decrease or an increase in the overall price level. It could lower prices if patients make price-conscious decisions and if providers are pressured to lower their fees to maintain competitiveness [21]. Yet it could also raise prices if lower-priced providers are prompted to negotiate fee increases after observing their competitors' rates [21, 22]; providers may also be hesitant to accept lower fees from one insurer, fearing they will have to drop prices with another insurer as well [23]. Unfortunately, the number of empirical studies on price transparency and prices in health care is limited [21–24]. It is therefore still unclear how prices will develop under the AQC and how this may affect future spending.

Another concern with respect to the sustainability of results is the impact of changing market structures on cost growth. In 2012, 85% of all physicians in Massachusetts were working under the AQC [5]. The remaining 15% were mostly small practices [5], which may not have been eligible for such a contract because they were not large enough to take on the risks of the contract or did not possess the necessary infrastructure or resources to manage population health. It is not clear what will happen to these smaller practices in future. Larger AQC groups may buy them up or they may exit the market; currently, small practices also have the option of joining other alternative payment arrangements, which include non-risk contracts focused on pay for performance. All these developments may result in more market power for existing AQC groups and/or a more concentrated provider market. It is unclear how that will affect the competitiveness of the market, and thereby future cost growth.

This paper has some limitations. First, the number of interviews was limited to ten parties. By speaking with insurers, providers, researchers and a government representative we nonetheless attempted to get a broad perspective on the reform. The implementation of a payment reform remains a very dynamic process, however, in which many factors play a role. This chapter therefore gives merely an impression of the key drivers and transferable lessons. A second limitation is that it is unclear how the AQC might have affected the *accessibility* of care. Previous research indicated that it has promoted the affordability and quality of care, but more rigorous evaluations about effects on accessibility are needed before one can get a full grip of the success of the reform.

In conclusion, the results of our AQC study show that provider–payer contracts can contribute to achieving cost containment and quality improvement. Creating the incentives and ability to steer poses one possible solution to achieving this. Such insights do not mean that contracting parties must implement an exact replica of the AQC template. They have a degree of freedom with respect to contract details. Although we observed that several context-dependent factors may influence the success of the reform, only two such factors must be considered preconditions. Implementing such a payment reform does not appear to require any major modifications to most current health care systems. In such systems, it seems we merely have to wait for an insurer to step up who is willing to take a chance.



Graph 1. Pay-for-performance component
Source: Blue Cross Blue Shield (BCBS), 2012 [25].

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Appendix 1: Detailed description of the Alternative Quality Contract

The AQC was implemented by the health insurance company Blue Cross Blue Shield (BCBS) in Massachusetts in 2009. The state of Massachusetts has a health care system based on managed competition. It has a private and a public insurance market. The private insurance market is highly concentrated. In 2013, the three largest insurers enjoyed a common market share of 67 per cent [20], whereby the market share of BCBS, the largest insurer, was 40 per cent [20]. In Massachusetts, fee-for-service (FFS) has been the dominant payment model in provider–payer contracts [26], although alternative payment methods (APMs) such as global payments are increasingly being adopted. In the private market, APMs cover about one third of the insured population [27]. BCBS holds the largest percentage of APMs in the health maintenance organisation (HMO) market, with 90% of its HMO members currently working under an APM [27]. The BCBS Alternative Quality Contract (AQC) represents the biggest change so far in terms of contract forms.

Under the AQC model, BCBS contracts with different groups of health care providers (AQC groups) and signs a single contract with every AQC group. The contract stipulates that the AQC group must include a sufficient number of primary care physicians (PCPs) who can collectively provide care to at least 5,000–10,000 insured individuals. The exact number of PCPs depends on the degree of risk sharing in the payment model. In addition to primary care, an AQC group is free to include hospital care [15]. The AQC group is accountable for spending across the entire continuum of care of its population and for a set of quality measures focused on inpatient and outpatient settings. The population is defined as all BCBS policyholders that are assigned to a PCP in the AQC network. Patients are not restricted to the providers within the AQC group but need a referral from their PCP to visit health care providers outside the AQC group.

For most organisations, the AQC payment model comprises a five-year contract based on a global payment with two-sided risk and a pay-for-performance (P4P) component [15]. The global payment is a target based on a per-member-per-month payment. The contract also specifies the fixed annual percentage increases of the global payment over the five-year period; the negotiated increases are set so that medical expense growth is to be halved after five years [15]. The two-sided risk component implies that if annual total medical spending exceeds or falls below the global payment, the respective losses or savings are divided between the insurer and the AQC group. The degree of shared savings and shared risk is laid down in the contract and varies from 50 to 100 per cent; the percentage of risk sharing determines how potential surpluses and losses are distributed, and under a 100-per-cent risk contract the provider keeps all surpluses or pays for the loss [6]. The pay-for-performance component depends on the aggregate score on a set of 64 quality indicators across process, outcome and patient experience

domains (for a complete list of these 64 quality indicators, see Chernew et al. [6]]). On the basis of this aggregate score, the AQC group is eligible for a maximum bonus of 10 per cent of its global budget.

After introduction of the AQC in 2009, the payment model underwent two important changes, transforming it to AQC 2.0 in 2011 [25]. Whereas under AQC 1.0 the annual percentage growth of the global payments was fixed, it is now linked to regional spending. This adjustment was made because external factors such as epidemics may impact total costs outside the control of the providers, and under the AQC 1.0 budgets they could necessitate complex reconciliations at the end of the year [25]. Moreover, under AQC 2.0, the extent of shared saving and shared risk is now tied to the organisation's performance on quality (see graph 1), and providers now also receive per-member-per-month quality payments. This adjustment to the pay-for-performance component results in more equal pay for comparable quality improvements amongst the AQC groups [25].

BCBS uses the payment model described above as a template when entering the negotiations with AQC groups. In practice, after complex and prolonged negotiations about contract specifics, every AQC group ends up with a slightly different and hence unique contract. For example, although the AQC template contains a five-year contract, some AQC groups have negotiated shorter contract lengths. Strong providers may prefer shorter contracts, as they may want to renegotiate their fees as frequently as possible. In addition, although the original quality metrics set incorporates 64 indicators, some specialty hospitals have negotiated to include only a subset of these indicators, as some indicators were not applicable to them.

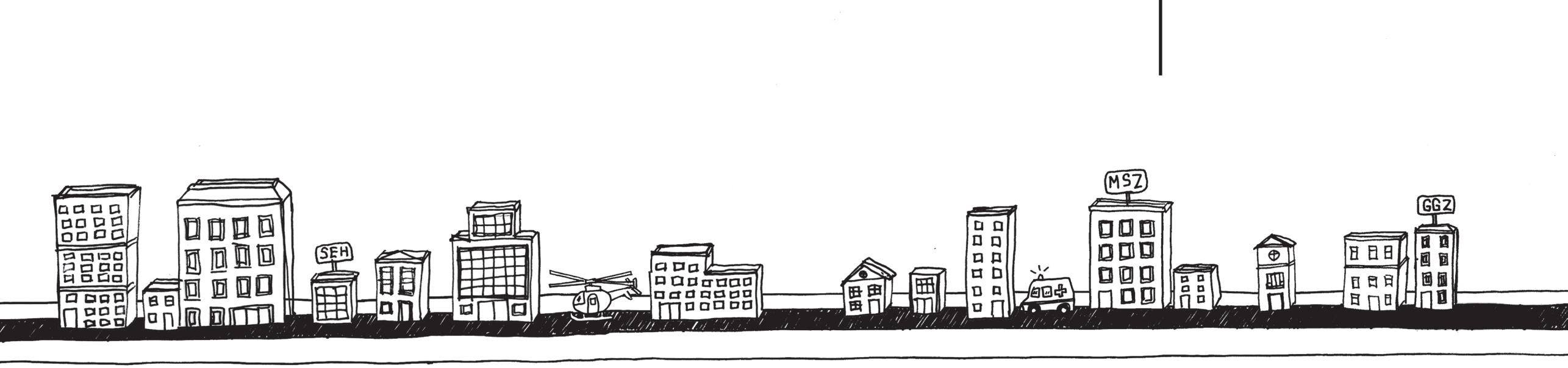
In practice, under the AQC, providers are still reimbursed on a fee-for-service, because the relative value unit is still used as the fundamental unit of accounting. At the end of the year, the sum of all fee-for-service spending accrued by an AQC group's population is compared to its global payment [15] and the savings or excess is calculated.

Throughout the contracting period, BCBS provides the AQC group with data on the AQC group's performance at various levels of the organisation. For example, it provides a daily update on hospital admissions. At the providers' level, it provides monthly reports on the care delivered to the patients within their population. For individual doctors, it provides data on quality and referral patterns. Patient-level data on gaps in care are also provided, as well as organisation-level data to be used for benchmarking [25].

6

Quality and hospital choice for cataract treatments: The winner takes most

Accepted: Ruwaard S., Douven R. Quality and hospital choice for cataract treatments: The winner takes most. International Journal of Health Policy and Management



Abstract

Background: Transparency in the quality of health care is an issue of growing importance internationally. Quality transparency is crucial for health care insurers in purchasing care on behalf of their policyholders, for providers in making necessary improvements in the quality of their care, and for consumers in choosing a provider when they need treatment. Conscious consumer decisions give health care providers incentives to deliver better quality. This paper studies the effects of health care quality on hospital patient volume and on patients' choices of hospitals, and more specifically whether high-quality providers attract more patients.

Method: Our dataset covered the period 2006–2011 and included all patients who underwent cataract treatment in the Netherlands. We first estimated the effect of quality on patient volume using simple ordinary least squares (OLS) regression. We then employed a mixed logit model to determine how patients make trade-offs between quality, distance and waiting time as they choose their providers.

Results: At the aggregate level, we found that a one-point increase in ophthalmology quality on a scale of 1–100 was associated with a higher patient volume of 2 to 4 per cent for the average hospital. The effect was driven mainly by the hospital with the highest quality score, as it was halved when that hospital was excluded from the dataset. At the individual level, all else being equal, patients showed a stronger preference for the hospital with the highest ophthalmology quality score and appeared indifferent between the remaining hospitals.

Conclusion: Our results suggest that the top-performing hospital attracted significantly more patients than the remaining hospitals. It appears that at least a small percentage of consumers responded to quality differences. Such responses could strengthen incentives for providers to invest in quality and for insurers to take quality into account in their purchasing strategies.

Key words: hospital demand, patient choice, quality indicators, quality competition

1. Introduction

Transparency in hospital quality is essential as it contributes to a patients' ability to make the appropriate hospital choice. After managed competition was introduced in the Netherlands in 2006, hospitals began negotiating with health insurance companies about the prices, quality and volume of care. Insurers are likely to be more incentivized to reward quality in their purchasing strategy if consumers indeed take quality into account in their provider choice. A necessary condition for efficient competition is that patients respond to quality differences across providers. Better-performing hospitals would then attract more patients, and providers would have more incentives to invest in quality, thereby improving the quality of care. The central question of our paper is whether cataract patients take quality into account as they choose a hospital for cataract treatment and whether high-quality hospitals attract more patients.

Evidence suggests that health care consumers tend to choose better-performing providers and are responsive to initiatives that provide quality information [1]. The decision to visit a hospital may depend on various factors. Not only quality considerations, but also the distance to a hospital, the waiting times and information obtained from third parties may be important factors in consumer choice. In the Netherlands, consumers may retrieve information on quality via their general practitioner (GP), family and friends, and publicly available quality data sources [2].

A number of studies have explored the impact of quality on hospital volume (aggregate level) or hospital choice (individual level). Most studies have found the effects to be positive but small, and some have found weak or non-significant effects [3–15]. Over time, exploring the effects of quality on hospital choice has become the preferred method [10]. Some studies have reported non-linear trends in consumer response to quality information; these tend to find that patients do avoid relatively poor-quality hospitals but that highly ranked hospitals do not attract significantly more patients [16–18]. The latter finding is counterintuitive. As in other competitive markets, highly ranked health care providers that excel and differentiate themselves in terms of quality might be expected to attract significantly more patients than their competitors. Our contribution to the literature will be to test this hypothesis by using a quality indicator that measures the reputations of Dutch hospitals performing cataract treatment in the period 2006–2011.

Cataracts are 'changes in clarity of the natural lens inside the eye that gradually degrade visual quality' [19]. Cataracts tend to develop over time and may lead to vision impairment and blindness [20, 21]. In 2010, cataracts were the main cause of blindness worldwide [20]. Blindness is more common in old age (though it may also occur at younger ages) and it is more common in women than in men [21]. Cataract is a condition that is fully treatable [20], in a surgical procedure whereby the old lens is

replaced with a new one [22]. Cataract treatments are fairly standard procedures and are associated with low medical risk [23].[1]

In the Netherlands, cataract treatments may be carried out in hospitals or in independent treatment centres (*zelfstandig behandelcentra* or ZBCs). Virtually all Dutch hospitals provide cataract treatment. Depending on a patient's insurance product type, either all providers are covered and fully reimbursed or only contracted providers are fully reimbursed, and patients are required to pay a (small) share of the costs for non-contracted providers. Little selective contracting existed during the time frame of our study. Furthermore, to access medical specialist care, patients require GP referral but they are free in their choice of providers.

The market for cataract treatment lent itself well to this analysis because (1) quality data at the treatment level was publicly available and variations in quality were reported, (2) cataract treatments were non-emergent and fairly standard procedures, (3) cataract treatments were available in practically all Dutch hospitals and (4) patients had freedom with respect to provider choice.

This paper follows the strategy described by Pope (2009) [3], starting with an aggregate-level analysis followed by an individual-level analysis. We begin with a brief literature review. Section 3 describes the dataset and the data analysis. The aggregate-level and individual-level results are reported in section 4, followed by a discussion and conclusions in section 5.

2. Literature review

In the health economics literature, the impact of quality has been investigated at aggregate and individual levels. At the aggregate level, studies explore the effects of quality on hospital volume [3–5, 11, 12]. At the individual level they investigate the effects of quality on a patient's hospital choice, relating this to other factors such as home-to-hospital distance and waiting time [3, 7, 8, 13–15, 17, 18, 24, 25]. One advantage of the individual-level approach is that it enables insights into how patients make trade-offs between quality and the other factors. Quality measures differ across studies [8]; they include mortality rates [16], readmission rates [7], patient-reported

1 Reverse causality may be a problem in these studies, in that volume may be affecting quality through learning effects. We tried to rule this out by focusing exclusively on standard cataract treatments, thus excluding more complex cataract treatments from the sample. Our communications with ophthalmologists confirmed that the treatments studied here were relatively straightforward and could be performed by all eye specialists. The reverse causality argument might figure more heavily in highly complex care such as cardiology, where specialisation is more important.

outcomes or report cards [4, 5, 11, 12, 13, 17, 18] or, and – as in our study – hospital reputation and composite scores [3, 14, 15]. The cited studies have tended to find that quality has a small but positive effect on hospital volume or on hospital choice, although some studies found weak or non-significant effects. More research on this topic is warranted, as a systematic review in 2011 [26] concluded that the currently available evidence was too limited to show how performance data influences the behaviour of consumers, providers and purchasers of health care.
Since the idea of the paper is to test whether better hospitals attract more patients, we also cite studies that that found non-linear effects of quality information on patient volume or hospital choice; low quality thereby tended to negatively affect patient volume, whilst high quality was not associated with higher patient volumes.

Cutler and colleagues [16], for instance, explored the impact of risk-adjusted mortality rates on hospital volume for bypass surgery in New York State. They found that hospitals with high mortality rates treated 4.9 fewer patients per month, which would have amounted to a 10 per cent decline in patient volume for the average hospital. On the other hand, hospitals that reported low mortality rates did not experience increases in patient volume. It was not clear whether patients who avoided lower-quality hospitals did not undergo treatment or whether they attended another hospital. Similarly, a study by Wang and colleagues [17] found that, after public reporting, surgeons with poor cardiac care report cards treated significantly fewer patients but that highly ranked surgeons did not treat significantly more patients; the report cards did not significantly affect total hospital demand. Dranove and Sfekas [18] used a conditional choice model to test whether patients moved to better-quality hospitals after hospital report cards were introduced. Their sample covered 18 hospitals in the New York metropolitan area and included all patients living in nearby counties who underwent coronary artery bypass surgery (CABG) from 1989 to 1991. They found that patients shifted to better-performing hospitals after introduction of the report cards, but that this effect was driven mainly by patients avoiding lower-quality hospitals. High-quality hospitals did not attract significantly more patients; the authors suggest that the high quality of those hospitals was already known prior to report card introduction [18].

3. Method

The main dataset we used in the present study included all patients who underwent cataract treatment in the Netherlands (as defined by the Dutch 'DBC code'[2] 110005540031) from 2006 to 2011. The data was obtained from the Dutch Healthcare

2 Dutch hospital products are classified in a system of episode-based treatment bundles called diagnosis-treatment combinations (*diagnose-behandelcombinaties*, DBCs); this resembles the diagnosis-related group (DRG) system in the United States.

Authority (NZa). For each episode of treatment, the dataset contained the patient's postcode, the unique hospital code and the year of treatment. The total sample consisted of 854,613 DBCs (the sum of the total numbers of DBCs for the years 2006 to 2011, as specified in the first row of table 1).

From this data we derived the following variables: '*total* DBCs' (total number of cataract treatments), *total number of hospitals* (number of hospitals in which cataract treatment was carried out) and *average distance* (the average distance in kilometres from the patients' postcodes to the hospital). We also obtained data from the Dutch Healthcare Authority for a further variable, the *average waiting time* in weeks; and we included two quality variables: a quality score for the ophthalmology specialism, *average ophthalmologist quality*, and an overall quality score for the hospital, *average overall hospital quality*.

Table 1 provides summary statistics on all the variables used. Total number of DBCs increased over the years and the treatments were carried out in approximately 150 hospitals. The average hospital performed about 1,000 cataract treatment procedures annually. The other variables in the table are discussed in the next section.

Table 1. Summary statistics for cataract treatment in the Netherlands, 2006–2011

	2006	2007	2008	2009	2010	2011
Total treatment episodes	117,980	139,474	151,972	145,097	151,826	148,264
Total number of hospitals	149	149	151	152	153	153
Average distance (km)	13.48	13.20	13.66	14.26	14.44	16.40
Average waiting time (weeks)	6.73	6.71	6.22	5.23	5.25	4.85
Average ophthalmologist quality (scale of 1–100)			18.48	19.14		
Average overall hospital quality (scale of 1–10)		5.09	5.14	5.08	5.77	5.49

3.1. Data description

Quality

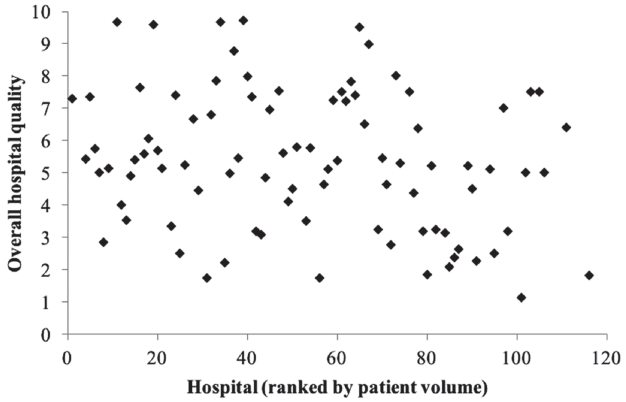
The two quality indicators *average ophthalmologist quality* and *average overall hospital quality*, summarised in table 1, were obtained from the Dutch weekly magazine *Elsevier* [27], which publishes yearly hospital quality information.

The overall hospital quality indicator was published in the years 2007 to 2011 and was based on process, structure and outcome measures,[3] although the composition of the indicator varied over the years. In 2007 it was based on seven quality measures, in 2008 on twenty-three, in 2009 on six and in 2010 and 2011 on four measures. In 2011 the indicators were for example: service and information, waiting times, safety and effectiveness. These four indicators were based, in turn, on 183 underlying indicators, such as the use of IT, whether patients with eczema could contact their dermatologist outside consultation hours and whether annual appointments could be scheduled on a single day. The scaling of the quality measures also differed across years. To enable comparability, we converted the annual overall hospital quality scores to a 1–10 scale. Graph 1a shows the average hospital quality scores per hospital for the period 2007–2011. On the horizontal axis, hospitals are ranked based on patient volume (the lower the volume, the further to the right). The graph indicates a wide variation in quality.

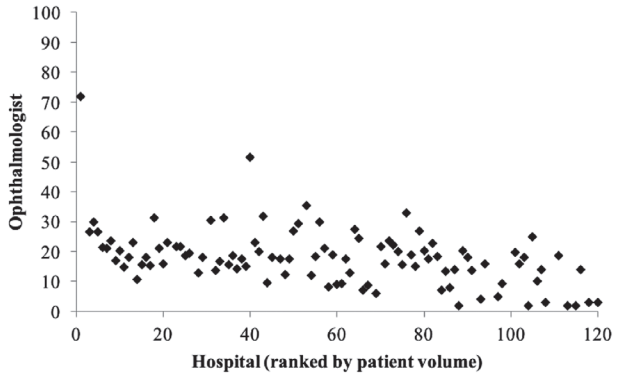
Elsevier also published quality indicators for specific specialisms, including ophthalmology. These were based on survey information; respondents were asked to judge a maximum of four hospitals and to indicate whether these stood out in terms of their medical services and practice management. Respondents included medical specialists, head nurses and heads of departments such as intensive care or operating theatres, GPs, and managers and directors of hospitals. This indicator is therefore likely to capture the reputation of a hospital in terms of the specialism in question. This ophthalmology indicator was published for the years 2008 and 2009 only.[4] In 2008 and 2009 there were 4,787 and 4,441 respondents respectively, of whom 2,862 and 2,519 were medical specialists. The average ophthalmologist quality scores over the years 2008 and 2009 are shown for each hospital in graph 1b. On the horizontal axis, hospitals are again ranked from high to low patient volume. The graph shows that the largest hospital was an outlier, with a quality score between 70 and 80; the remaining hospitals had scores ranging between approximately 0 and 40, with one exception whereby a medium-sized hospital had an average score between 50 and 60.

3 Process indicators assess activities and tasks executed by a provider in delivering care. Structure indicators relate to the numbers and types of resources used in delivering care. Outcome measures assess the impact of the care process on patient health [28].

4 When Elsevier published a new quality indicator for ophthalmology in 2011, it was no longer based on surveys but on publicly available performance indicators [27]. The top-performing hospital referred to in our study was not among the seven best-ranked hospitals in 2011.



Graph 1a. Overall hospital quality scores by hospitals (range 0–10)

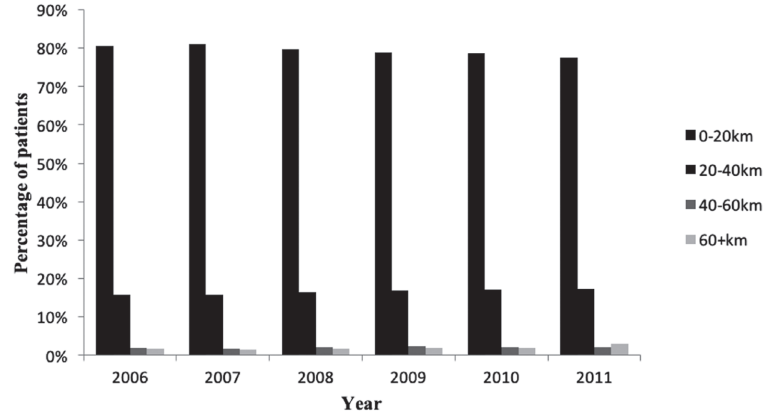


Graph 1b. Ophthalmologist quality scores by hospitals (range 0–100)

Control variables

The yearly data on the control variable *average waiting time* in weeks per hospital were obtained from the Dutch Healthcare Authority (NZa). Data was available for the years 2006 to 2011 and the average waiting time for all hospitals in that period was five weeks and six days (5.80 weeks). It declined steadily over the time frame from six weeks and five days (6.73 weeks) in 2006 to four weeks and six days (4.85 weeks) in 2011 (table 1). Hospitals showed wide variations in average waiting times, ranging from 0 to 21 weeks.

The control variable *distance* was based on the number of kilometres between the postcode of a patient's residence and the hospitals' postcodes.[5] The average number of kilometres that patients travelled to hospitals in this sample increased slightly over time, from 13.48 kilometres in 2006 to 16.40 kilometres in 2011 (table 1).[6] The majority of patients did not travel far, though there were some outliers. Graph 2 shows the distribution of patients travelling 0–20 km, 20–40 km, 40–60 km and 60+ km; approximately 80 per cent attended a hospital within a 20-kilometre range, 15 per cent travelled 20 to 40 kilometres and very few travelled over 40 kilometres. In the total sample, 37 per cent of patients bypassed the closest hospital; of those who attended the top-performing hospital, 88 per cent had bypassed the closest hospital.



Graph 2. Distance travelled for cataract treatment (by distance category)

3.2. Estimation method

Aggregate-level analysis

At the aggregate level, we used a simple ordinary least-squares (OLS) model to estimate the effect of quality on patient volume for the years 2008–2011. Similarly to Pope (2009) [3], the model is estimated as follows:

$$Y_{i,t} = \alpha + \beta_1 w_{i,t} + \beta_2 Q_{i,t\text{-}1} + \gamma_t + \epsilon_{i,t}$$

5 Another possible way to estimate patient travelling would have been in the time required to reach the hospital. Varkevisser and Van der Geest [24] used travel time by car between a patient's postcode and the hospital postcode. Actual travel time would depend on the route and accessibility of public transport. Given that the Netherlands is a densely populated country with a good infrastructure, we felt that distance in kilometres would roughly correspond to distance in travelling time, especially for people travelling greater distances.

6 For the hospital with highest ophthalmologist quality score, patients were willing to travel further (21.10 km).

$Y_{i,t}$ represents the total number of cataract treatments carried out at hospital i, in year t. Variable $w_{i,t}$ is the average annual waiting time in weeks for hospital i in year t. The term $Q_{i,t-1}$ is a vector of lagged ophthalmologist quality and lagged overall quality of hospital i.[7] The overall hospital quality scores for 2007–2010 were used as lagged quality scores for the years 2008–2011. Since we did not have ophthalmologist quality scores for all years for use in the regression, we used the 2008 quality scores as a proxy for the lagged quality indicator for 2008 and the 2009 quality scores as a proxy for the lagged quality indicator for 2011. Year dummies, γ_t , were included to capture year-specific effects. Fortunately, the annual variation of hospital quality was limited, making these proxies fairly reliable.[8] To explore the extent to which the effect of ophthalmologist quality on patient volume may have been driven by the top-performing hospital, we repeated the regression after omitting the top-performing hospital.

Our OLS model had two potential limitations. First, it did not control for differences between hospitals; we therefore ran a fixed-effects model to control for unobserved provider differences such as number of specialists, available resources and spare capacity [29]. Second, our OLS model did not allow for inclusion of the distance variable; the analysis was therefore continued with a patient choice model at the individual level.

Individual-level analysis

For the individual-level analysis we employed a mixed logit model, which is generally used to model hospital choice on a patient level [10]. It enabled us to analyse how patients make trade-offs between quality, distance and waiting time. A mixed logit model is more flexible than a conditional logit model because it allowed for random taste variation, unrestricted substitution patterns and correlation in unobserved factors over time [30]. Under a mixed logit model, the parameters associated with each observed variable are not fixed, but allow for variation at the patient level. A conditional logit model assumes fixed parameters; differences in preferences are related to observed characteristics of the patient and are captured through the inclusion of interaction variables. We used a standard utility function of individual i attending hospital q in time t:

$$U_{i,q,t} = \alpha + \beta'_{i,t} X_{i,q,t} + e_{i,q,t}$$

$X_{i,q,t}$ represents the explanatory variables quality, distance and waiting time. The error term $e_{i,q,t}$ is also unobserved and is assumed to be independent and identically distributed. Parameter $\beta'_{i,t}$ is a vector of coefficients and is unobserved. Parameter $\beta'_{i,t}$ is treated as a random parameter and is integrated over all its possible values of β, then

7 Some studies [4, 7, 8] inserted the absolute values of quality and others [3] used rankings.

8 Indeed, we found a strong correlation of 72 per cent for lagged ophthalmologist quality scores in the years 2009 and 2010.

weighted by the density of β to obtain the unconditional choice probability, $P_{i,q,t}$, of person i choosing hospital q in year t.

$$P_{i,q,t} = \int \left(\frac{e^{\beta' x_{i,q,t}}}{\sum_j e^{\beta' x_{i,q,t}}}\right) * g(\beta) | d\beta$$

Our dataset consisted of 854,613 patients who were free to choose from 150 hospital locations. Unfortunately, a mixed logit model could not be computed with a data set of this format. We therefore reduced the dataset by confining ourselves to the years 2009 and 2010 and by restricting the patients' choice set. The set was reduced to the years 2009 and 2010, because the lagged ophthalmologist quality indicator was available for these two years only. The individual hospital choice set was restricted to the 20 closest hospitals; thus, instead of having all hospitals in the choice set for all patients, we composed a choice set of the 20 closest hospitals for every individual, allowing for larger choice sets did not significantly alter the results, as the majority of the patients' choices were amongst the closest 20 hospitals.[9] These two restrictions resulted in 2,996,205 patient–hospital combinations in the years 2009 and 2010 for use in the estimations.

To ascertain whether people had a stronger preference for the top-performing hospital, we estimated the model twice, first with quality in linear form and then with quality dummies to allow for non-linear effects. The average score for the ophthalmologist quality variable in the years 2009 and 2010 was used as the quality indicator. Quality dummies were created for every 10-point interval up to 70–80 (as all scores were below 80); quality dummy 0–10 was excluded to avoid multicollinearity. In both regressions, all coefficients were assumed to be normally distributed.

In addition, the literature highlights a non-linear effect of distance whereby the negative utility of having to travel an additional kilometre would be expected to decline with growing distance. To take this non-linearity into account, we incorporated the following distance dummies: 0–20 km, 20–40 km, 40–60 km, 60–80 km, 80–100 km and 100+ km (with the last dummy variable again excluded from the regression to avoid multicollinearity).

For comparison, both regressions were also run using a conditional logit model, which serves as a good comparison to the mixed logit, as it generally yields similar results. The

9 Sivey [25] and Howard [12] used a similar approach, restricting the choice set to the closest 10 hospitals. We opted for a larger choice set, because one focus of this study was on the top-performing hospital (for which patients were willing to travel further). When patients' choices fell outside their own choice set, the mixed logit model was not able to estimate their preferences and they had to be dropped from the sample. Restricting the choice set to 20 hospitals eliminated only 2 per cent of all patients and only 7 per cent of those attending the top-performing hospital, whereas restricting it to the closest 10 hospitals would have eliminated 5 per cent of patients and 18 per cent of those at the top-performing hospital.

mixed logit is preferred because it relaxes the independence of irrelevant alternatives assumption, and it generally yields more precise estimates, though the coefficients tend to be of similar size [31].

4. Results

Table 2a shows the correlation matrix of the hospital-level variables: patient volume, waiting time, ophthalmologist quality and hospital quality. Both quality variables were positively correlated with patient volume, but ophthalmologist quality showed a much stronger correlation than overall hospital quality, 47 and 15 per cent respectively. The correlation between the two quality variables was fairly low (12 per cent), indicating a large variation in quality across different specialties in hospitals. Table 2b shows the correlation matrix after exclusion of the top-performing hospital; the correlation of patient volume with ophthalmologist quality was then reduced by nearly half, from 47 to 26 per cent, whereas the correlation with hospital quality receded only slightly, from 15 to 13 per cent. Waiting time and patient volume are negatively correlated in both tables, implying that hospitals with longer waiting times experienced somewhat lower patient volumes. Waiting time is also negatively correlated with both quality indicators, suggesting that better quality hospitals generally had lower waiting times.

Table 2a. Correlation matrix in cataract treatment: Patient volume, waiting time and quality

	Total DBCs	Waiting time	Ophthalmologist quality	Overall hospital quality
Total DBCs	1.0000			
Waiting time	-0.1778	1.0000		
Ophthalmologist quality	0.4748	-0.1434	1.0000	
Overall hospital quality	0.1518	-0.1144	0.1176	1.0000

Table 2b. Correlation matrix in cataract treatment: Patient volume, waiting time and quality (excluding top-performing hospital)

	Total DBCs	Waiting time	Ophthalmologist quality	Overall hospital quality
Total DBCs	1.0000			
Waiting time	-0.1587	1.0000		
Ophthalmologist quality	0.2568	-0.1153	1.0000	
Overall hospital quality	0.1259	-0.1087	0.0841	1.0000

4.1. Aggregate-level results

Table 3 shows the aggregate-level results in terms of the impact of quality on patient volume. The first two columns represent the analysis based on all hospitals, with and without inclusion of overall hospital quality (columns 2 and 1 respectively). The two columns show that ophthalmologist quality was positively correlated with patient volume. In the years 2008 and 2009, a one-point increase in ophthalmologist quality (on a scale of 1–100) resulted in approximately 57 and 64 more patients, respectively, for the average hospital, translating into a patient volume increase of 4 per cent. Over time, this impact diminished somewhat: in 2010 and 2011, a one-point increase in ophthalmologist quality was associated with a patient volume increase of about 2 per cent. Column 2 shows the results after addition of overall hospital quality to the regression. The results show that overall hospital quality is insignificant. Overall hospital quality does also not appear to affect the results for ophthalmologist quality, as the effect of ophthalmologist quality on patient volume is similar in columns 1 and 2. The remaining indicator, waiting time, was significantly and negatively associated with patient volume: an increase in waiting time by one week resulted in 66 fewer patients, or a patient volume decline of 4 per cent for the average hospital.

The same analysis was then repeated after omission of the top-performing hospital from the regression, with results shown in columns 3 and 4. A comparison of columns 1 and 2 with columns 3 and 4 indicates that the positive effect of quality on patient volume was driven largely by the top-performing hospital. After it was eliminated from the sample, the effect of ophthalmologist quality on patient volume was halved, and in 2010 and 2011 it was no longer significant. In 2008 and 2009, a one-point increase in ophthalmologist quality would now result in 27 and 28 more patients, which translates into a patient volume increase of about 2 per cent).

In addition to the OLS model, a fixed-effects model (not reported here) was also estimated using the same variables. In the fixed-effects model none of the variables turned out significant.[10]

10 Results are available on request. The fixed-effects model yielded non-significant outcomes because quality variation over time tends to be small and is hence largely absorbed in the fixed effects model.

Table 3. Patient volume, ophthalmologist quality and overall hospital quality

	All hospitals		Without top-performing hospital	
	(1)	(2)	(3)	(4)
Ophthalmologist quality 2008	56.56***	52.96***	33.76**	27.09*
	(10.35)	(10.84)	(11.23)	(11.64)
Ophthalmologist quality 2009	63.93***	61.43***	31.90*	27.95*
	(11.44)	(11.73)	(12.97)	(13.09)
Ophthalmologist quality 2010	34.08***	35.55***	15.67	14.40
	(9.08)	(9.64)	(10.74)	(11.45)
Ophthalmologist quality 2011	34.07***	32.77**	5.69	1.06
	(9.21)	(9.73)	(11.03)	(11.61)
Overall hospital quality 2008		18.40		13.85
		(38.28)		(34.73)
Overall hospital quality 2009		43.62		39.49
		(39.71)		(36.02)
Overall hospital quality 2010		-47.56		-48.57
		(59.58)		(54.04)
Overall hospital quality 2011		25.61		38.94
		(44.88)		(40.81)
Waiting time	-66.11***	-66.75***	-64.60***	-65.68***
	(15.24)	(16.96)	(14.11)	(15.12)
N	317	284	313	280
adjusted R2	.27	.26	.10	.08

1) Year dummies are not presented here.

2) * Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

3) Sample sizes in columns 2 and 4 are smaller because the overall hospital quality indicator was missing for 33 hospitals.

4.2. Individual-level results

Individual-level results are presented in table 4. For every variable, the mean and standard error of the coefficient are shown in the first row. The second row shows the value of the standard deviation of the coefficient and the corresponding standard error. Table 4, column 1, confirms the aggregate-level findings in that people prefer quality and hospitals that are associated with lower waiting times. The indicator of ophthalmologist quality was positive (0.032) and statistically significant. The mean coefficient on waiting time was negative (-0.01) and statistically significant. The individual-level results further suggest that patients preferred hospitals that were close by and that the effect of distance on hospital choice was non-linear. The mean coefficient on the distance dummies grew smaller as distance grew larger; for example, people preferred hospitals within a range of 0–20 kilometres as opposed to 20–40 kilometres, with corresponding mean coefficients of 7.50 and 4.53. The gap between the coefficients narrowed as distance grew (7.50 - 4.53 > 4.53 - 2.22 > 2.22 - 1.19), implying that the negative utility derived from having to travel an additional kilometre declined with distance.

Although the quality and distance indicators could not be interpreted individually, the willingness to travel for quality could be estimated. This was done by comparing the utility derived from quality with that derived from distance: the coefficient on ophthalmologist quality was .032, and the difference between the utility gained from choosing a hospital within 0–20 kilometres, as opposed to 20–40 kilometres, was 2.97 (7.50 – 4.53). This suggests that patients valued a hospital within the 0–20-kilometre range 9 times more than a hospital with a 10-point higher quality score. In other words, for every ten patients, one patient would choose to travel 20 to 40 kilometres for a 10-point quality gain, whilst the other nine patients would attend a hospital within 20 kilometres. The results also allow us to calculate, more specifically, how many additional kilometres patients were willing to travel for a one-point quality increase. For example, if a hospital were located within 20 kilometres, the negative utility for travelling an additional kilometre was 2.97 ÷ 20 = 0.15. This implies that patients were willing to travel 0.032 ÷ 0.15 = 0.2 kilometre extra for a one-point increase in quality.

Table 4, column 2, suggests that people had strong preferences for the top-performing hospital, but appeared indifferent between the remaining hospitals. The coefficient mean on ophthalmologist quality scores of 70–80 (2.53) was more than twice those of the remaining quality dummies, suggesting that patients had a stronger preference for the top-performing hospital. As the coefficient means on the remaining quality dummies were similar (0.80, 0.90, 1.09 and 0.87), patients appeared indifferent between these hospitals. . Hospitals falling in these categories were however preferred over hospitals in the reference group (ophthalmologist quality 0–10).

Patients showed moderate variation in making trade-offs when choosing a hospital. For some variables, the standard deviation of the coefficient was significant, implying patient heterogeneity. More specifically, column 2 indicates patient heterogeneity for hospitals with quality scores ranging between 70–80 and of 30–40; for the remaining quality categories, patient heterogeneity was not significant. Nor did patients vary significantly in how they valued distance (excepting the distance dummy of 0–20 km in the first regression).

The results of the conditional logit analysis that we performed as a robustness check are presented in table A1 in the appendix. Results were almost identical to the mixed logit estimates.

Table 4. Mixed logit estimates of associations between ophthalmologist quality, distance to hospital and waiting time

		(1)		(2)	
Parameter		**Value**	**(SE)**	**Value**	**(SE)**
Ophthalmologist quality	Mean of coefficient	0.032***	(.00)		
	SD of coefficient	0.01***	(.00)		
Ophthalmologist quality	Mean of coefficient			2.53***	(.02)
70–80	SD of coefficient			0.70***	(.05)
Ophthalmologist quality	Mean of coefficient			0.80***	(.04)
50–60	SD of coefficient			0.20	(.13)
Ophthalmologist quality	Mean of coefficient			0.90***	(.02)
30–40	SD of coefficient			0.96***	(.03)
Ophthalmologist quality	Mean of coefficient			1.09***	(.01)
20–30	SD of coefficient			0.01	(.02)
Ophthalmologist quality	Mean of coefficient			0.87***	(.01)
10–20	SD of coefficient			0.01	(.01)
Distance 0–20 km	Mean of coefficient	7.50***	(.06)	7.54***	(.06)
	SD of coefficient	0.11**	(.04)	0.00	(.01)
Distance 20–40 km	Mean of coefficient	4.53***	(.05)	4.55***	(.06)
	SD of coefficient	0.02	(.02)	0.00	(.01)
Distance 40–60 km	Mean of coefficient	2.22***	(.06)	2.26***	(.06)
	SD of coefficient	0.18	(.10)	0.05	(.03)
Distance 60–80 km	Mean of coefficient	1.19***	(.06)	1.25***	(.06)
	SD of coefficient	0.07	(.06)	0.02	(.05)
Waiting time	Mean of coefficient	-0.01***	(.00)	-0.02***	(.00)
	SD of coefficient	-0.00	(.00)	0.00	(.00)
Log likelihood		-242,184		-240,920	
N of observations		2,665,880		2,665,880	

1) Year dummies are not presented here.

2) * Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$

5. Discussion and conclusions

This paper explores trends in quality on hospital volume and hospital choice. Both the aggregate-level and our individual-level results suggest that quality had a positive impact on volume and hospital choice, similar to previous studies [3-5, 7, 10, 13, 14]. The positive effect was non-linear, with the top-performing hospital attracting significantly more patients than would be expected based on linear quality differences. In contrast, some previous studies found non-linear effects whereby patient volume for poorly performing providers declined after quality reporting but failed to increase for high-quality providers [6, 16–18]. Those findings may have been related to the types of

treatment and quality variables considered. For example, Cutler and colleagues [16], Dranove and Sfekas [18] and Wang and colleagues [17] all relied on mortality rates for cardiac care. As the risk and severity of complications for such complex treatment are likely to be higher than those for the relatively simple cataract treatments we studied here, people might be more sensitive to quality differences in the bottom market segment and respond by avoiding poor performers. Mennemeyer and colleagues [6] showed that available information about mortality rates that diverged from patients' expectations did not significantly alter market shares, whilst media reports of unexpected deaths had a significant negative impact. The negative information on unexpected deaths may have driven patients away, a phenomenon again reflected in the bottom segment of the market only. The distributions of the quality variables may have also been different in other studies. Our results suggest a strong impact at the top of the hospital market because our dataset contained a clear outlier in the upper segment, whereas the datasets used in other studies may not have contained such outliers.

Our findings suggest moderate variation in how patients make trade-offs. Patients tended either to value quality and choose the top-performing hospital, or they chose the nearest hospital. Although the top-performing hospital in our study had attracted many people living further away, patients appeared over the years to be increasingly travelling further to other hospitals as well. We cannot explain this new trend in the market on the basis of our limited dataset, but the implication may be that other aspects, such as marketing, newly available quality measures[11] or enhanced competition, have played a role. For example, the liberalisation of the Dutch hospital market has led to more specialization of hospitals, and new clinics have also entered the market.

Health care quality has many different dimensions and in many countries increasing efforts are being undertaken to measure quality. Yet that is a slow process, and reliable output quality indicators are still not available for many hospital treatments. Our research incorporated two quality indicators: one for overall hospital quality and one for specialism-specific quality. The two indicators may not fully reflect the underlying quality of hospital; they may also reflect hospital reputation. We employed them

11 The fact that *Elsevier* altered its quality indicators could have had a negative impact on the market position of the top-performing hospital. In addition, an increasing number of other quality indicators have become available in recent years. The Dutch website www.kiesbeter.nl, for instance, collects and publishes quality indicators. These are process indicators such as how a patient values communication with ophthalmologists and nurses and communication about medicines. We also tested whether patient choice was related to these process indicators. Although we do not report the results here, we found very weak positive correlations with hospital choice for two process indicators only, whilst a third indicator, communication with ophthalmologists, was weakly and negatively correlated with hospital choice. Over the years of our study, these indicators received less attention in the public media. Nor do they necessarily reflect the quality of treatment.

because they were available to the public. Some patients may have actually used that information in choosing a hospital; others may have obtained recommendations from general practitioners. Hence, our results may also be partly explained by other hospital attributes (such as reputation) or by quality information from other sources (such as general practitioners), which may, in turn, be intercorrelated with the quality indicators we used. Unfortunately, the ophthalmology-specific (lagged) quality indicator was available for 2009 and 2010 only. As a result, in our individual-level analyses we could only include those two years, and in our aggregate-level analyses we had to use proxies for the remaining years. That weakened our ability to interpret the effects of quality on volume and patient choice.

In addition, with respect to the ophthalmologist quality indicators, the top-performing hospital formed a clear outlier that largely drove the results. This requires caution in interpreting our results, which may be very market-specific. Moreover, the quality variable in question was based on a survey and it probably incorporates other quality aspects besides reputation, such as outcome, process and structural quality indicators. Since the survey results were based on the opinions of GPs and other medical specialists, the indicator may also be positively correlated with referral patterns (as survey respondents may have provided referrals themselves). A limitation of this variable is therefore that differences in quality scores are difficult to interpret; since cataract treatment is relatively easy to perform, differences in medical outcomes are likely to be small. However, the fact that the top-performing hospital was a clear outlier is confirmed by its reputation; it has acquired the status of centre of excellence and has recently received several additional awards for its quality.

Because our dataset was too large for conducting a mixed logit model, we were forced to make decisions with respect to reducing the sample size. We restricted the choice set to the 20 closest hospitals for every patient involved; allowing for larger choice sets did not significantly alter the results.

Whether a 'winner-takes-most' strategy is applicable to other types of medical procedures would probably depend on the nature of the treatment and on specific market characteristics. Our findings suggest that for relatively standard cataract treatments it is possible to become a dominant player in the market. However, for some medical procedures a winner-takes-all strategy may be less appropriate. For example, in the market for kidney transplantation, the availability of transplant organs is an important factor, and for emergency treatment the ready accessibility of care may be foremost. A winner-takes-most strategy may be more rewarding for chronic diseases, as the patients involved may be more sensitive to quality differences. Further research is needed to explore whether a winner-takes-most phenomenon, as we have observed in Dutch cataract treatment, occurs in other specialisms as well.

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Appendix

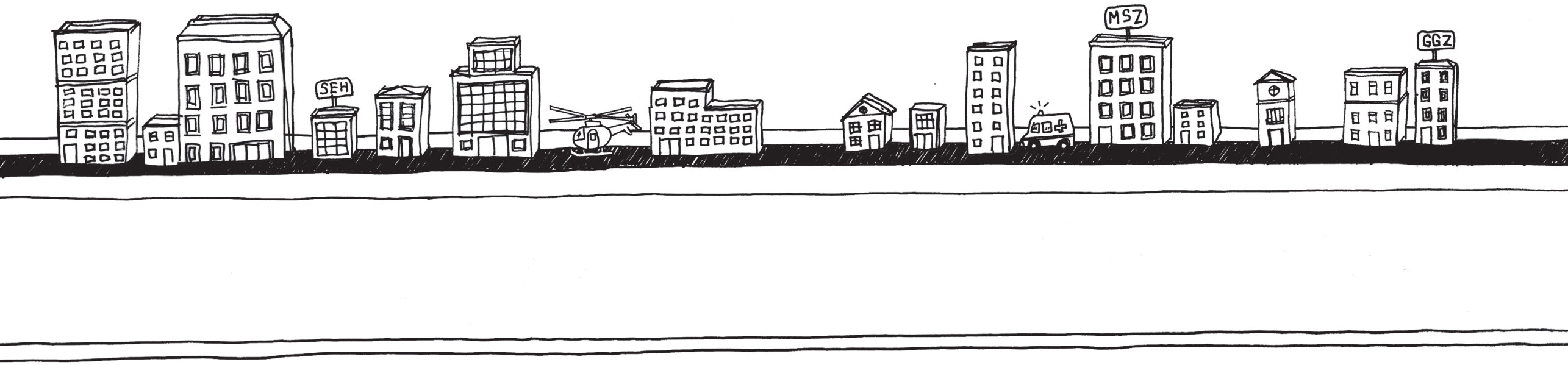
Table A1. Conditional logit estimates: ophthalmologist quality, distance to hospital and waiting time

	(1)	(2)
Ophthalmologist quality	.032*** (.000)	
Quality 70–80		2.57*** (.02)
Quality 50–60		.81*** (.04)
Quality 30–40		1.03*** (.02)
Quality 20–30		1.10*** (.01)
Quality 10–20		.88*** (.01)
Distance		
0–20 km	7.47*** (.06)	7.42*** (.06)
20–40 km	4.51*** (.06)	4.47*** (.06)
40–60 km	2.22*** (.06)	2.22*** (.06)
60–80 km	1.18*** (.06)	1.21*** (.06)
Waiting time	-.01*** (.001)	-.01*** (.001)
Log likelihood	-242,203	-241,138
N of observations	2,665,880	2,665,880

1) Year dummies are not presented here.
2) * Significant at $p < .05$; ** significant at $p < .01$; ***significant at $p < .001$

7

General discussion



1. Research aims

This thesis has explored how the purchasing of health care can promote the three system goals in the Dutch health care system: quality, affordability and accessibility of care. We first investigated current contracting practice in the health care purchasing market for two of the largest care sectors, specialist medical care and behavioural health care. Second, we drew upon experiences with the purchasing of care abroad and investigated what aspects of contracting contributed to quality and affordability there. We focused on quality and affordability, because the Netherlands has historically scored well in terms of accessibility [1]. Given that health care is local and highly context-dependent, we investigated how the key drivers behind quality improvement and cost containment could translate to the Dutch setting. Third, we explored how patients choose a health care provider on the health care provision market, and more specifically what role quality plays in their choice of providers. These aims were translated into the following six research questions:

Research questions related to the health care purchasing market

1. What are the key elements of current contracting practice for hospital-based care in the Netherlands? (chapter 2)
2. What elements would an optimal provider–payer contracting strategy have? Balancing customisation and transaction costs in contracting care (chapter 3)
3. What elements are involved in the purchasing and contracting process for specialist medical care? (chapter 4)
4. What is the role of health insurers in a managed competition model? (chapter 4)
5. What can we learn from provider–payer contracting experiences abroad? (chapter 5)

Research question related to the health care provision market

6. To what extent do patients take quality into consideration in choosing health care providers? (chapter 6)

In this final chapter, we first summarise our key findings in response to these six research questions (section 2). In section 3, 'Reflections on the Key Findings', we discuss the findings in a broader context in terms of the three goals of the health care system: quality, affordability and accessibility. Section 4 provides some policy recommendations for the Dutch health care system. Considerations for further research are discussed in section 5 and the limitations of the study in section 6. This chapter ends with some concluding remarks in section 7.

2. Key findings

2.1. What are the key elements of current contracting practice for hospital-based care in the Netherlands?

As from 2006, Dutch private insurers purchase care from health care providers; prior to that, the government was responsible for allocating budgets. On the basis of our findings on the purchasing of specialist medical care in 2012 (chapter 2), we observed that providers were contracted mostly on the basis of either a global budget (*plafondafspraak*) or a lump-sum payment (*aanneemsom*). Under a global budget arrangement, providers were reimbursed for claims up to a certain threshold. Under a lump-sum arrangement, providers received a fixed payment for a specific time period irrespective of volume. Some smaller providers were contracted on a fee-for-service (FFS) basis. The selective contracting of providers was rare. Rather, selective contracting took place at the disease level, meaning that the respective treatments were only eligible for reimbursement if the providers met certain standards such as minimum volume norms.

Contracts also included arrangements to control the quality and the volume of care. For example, placing a volume cap on a set of treatments was for example used to contain volume levels. Contracts tended to adopt quality indicators from professional organisations (*beroepsgroepen*) and some insurers introduced their own quality indicators. Nonetheless, in the 2012 contracts quality still appeared to play a minor role. Most contracts were for a period of one year, though multiple-year contracts were also employed. Contracts tended to be incomplete, allowing for renegotiation under specific circumstances, such as unanticipated changes in volume levels.

2.2. What elements would an optimal provider–payer contracting strategy have? Balancing customisation and transaction costs in contracting care

In chapter 3 we explored how payers make trade-offs in tailoring contract design and the associated transaction costs in the purchasing of behavioural health care services. Health care providers vary in terms of attributes such as size, revenue levels and care types. Such differences may give reason to conclude divergent provider–payer contracts with a variety of associated incentives. Since larger providers may be able to take on higher levels of financial risk than smaller providers, for example, a large provider may be allocated a global budget, whereas a smaller provider receives a fee-for-service contract). Adjusting contract design to specific provider characteristics does entail additional transaction costs, however, so the optimal contracting strategy would embody careful trade-offs in terms of the degree of provider-level customisation and the associated transaction costs.

For the purchasing of behavioural health care, private insurers were found to adopt their own purchasing strategies. These resulted in more payer-level than provider-level variation in contract design. Payer-level variation arose especially when it came

to the design of the financial budget (for instance, the number of sub-budgets) and performance incentives (for instance, the number of fee increments).

To realise some of the benefits of tailored contracts, payers may offer different templates to different provider groups. Providers falling into different groups may thus be subject to different contract templates that rely on characteristics such as revenue levels or provider type. Negotiations may lead to a further fine-tuning of contract design, although payers may choose to negotiate face to face only with larger providers that have revenue levels beyond a certain threshold.

We concluded that insurers do make trade-offs between transaction costs and customisation in the sense that (1) they offer providers group-level customisation and (2) for further fine-tuning of the contracts they tend to negotiate face to face with large providers only.

2.3. What elements are involved in the purchasing and contracting process for specialist medical care?

In chapter 4 we analysed the purchasing process for specialist medical care based on reviewing the literature and interviews with providers and insurance officials. We distinguished the purchasing cycle into four phases: (1) the purchasing strategy, (2) the provider–payer negotiations, (3) monitoring and (4) reconciliations. Affordability, volume and quality were frequently mentioned themes in the purchasing of care. In the vision and mission statements of individual insurers, included in their purchasing documents, various strategies were designed to proactively manage quality, affordability and volume. In the provider–payer negotiations, however, insurers experienced practical difficulties in fulfilling some of those goals. For example, incorporating quality indicators proved challenging, because many existing indicators were not considered suitable for use in purchasing care. Realising volume shifts from one provider to another was challenging when that would be at the expense of another provider that was averse to accepting a correlative decline in its budget. Moreover, exerting rigorous control via budgets was not always desirable or easy in an unpredictable environment, so that reconciliations sometimes took place.

2.4. What is the role of health insurers in a managed competition model?

To lay down the insurers' role in a system of regulated competition, we studied Alain Enthoven's theoretical model of regulated competition and then went on to analyse the role of health insurers specifically for the Dutch system. We did this by identifying the tasks for insurers as laid down in the Dutch Health Insurance Act and the Negotiators' Agreement on Specialist Medical Care in 2014–2017, as concluded additionally in 2013 by the umbrella organisations of providers and insurers together with the Dutch health ministry. From Enthoven's theoretical model we determined that the following players occupy key roles: the sponsor (which might be an employer, a government entity

or a health insurance purchasing cooperative), the health plans and the consumers [2]. Enthoven envisaged the following roles for the sponsor: establishing equity, selecting health plans, organising the process of enrolment, creating demand that is price-elastic and managing risk selection [2].

The Dutch system proved to be structured rather differently, starting with a different set of players: insurers, providers and consumers. In that system, insurers were expected to purchase care based on quality at an affordable price on behalf of their insured populations. Their statutory tasks included an acceptance obligation (*acceptatieplicht*), a duty of care (*zorgplicht*), avoidance of premium differentiation, transparency in insurance policies, financial accountability in accordance with sector standards and invoice monitoring [3]. The Negotiators' Agreement on Specialist Medical Care included additional measures such as an expense cap for specialist care and a shift towards result based payment [4].

2.5. What can we learn from provider–payer contracting experiences abroad?

This research question was addressed by drawing on experiences in one of the largest-scale payment reforms in health care, the Alternative Quality Contract (AQC) in Massachusetts (chapter 5). The AQC has been linked to both reductions in cost growth and improvements in quality as compared to a control group [5].

We determined that the key driver behind the quality improvement and cost growth reduction was that health care providers were willing and able to work proactively in the interest of quality and affordability. Factors that contributed to that willingness included the incentives stemming from the payment model design, the prospectively defined population and leadership. The ability to proactively manage patients was facilitated by required referrals from primary care providers and the availability of data (on quality, prices, patients' whereabouts and other matters). Finally, insurer commitment fostered both the incentives and the ability to work proactively.

Issues to consider in implementing such a reform would start with generous, long-term contracts, a focus on getting the strongest providers on board first, and the large-scale implementation of the reform. However, because health care is local, similar payment reforms in other countries or regions might not necessarily yield the same results as the AQC in Massachusetts. Factors that might impede successful implementation in such contexts are difficulties with prospectively defining insured populations and with assigning a primary care doctor to every patient, as well as unfavourable market structures, legislation and regulations. Such factors form potential hindrances to patient management and the ability of doctors to steer on high-quality and affordability.

2.6. To what extent do patients take quality into consideration in choosing health care providers?

In our analysis in provider choice and hospital volume levels for cataract treatments (see chapter 6), we found that the patients with cataracts took quality into account in their provider choice. We used two different indicators for quality: a hospital quality indicator and a quality indicator for the ophthalmology specialism. The analysis showed that patients were more responsive to the specialism-specific quality indicator than to the overall hospital indicator.

Moreover, it emerged that patients were especially responsive to a single top-performing hospital but were more or less indifferent between the remaining hospitals (though they did avoid hospitals in the lowest segment). We conclude that patients were willing to travel for high quality but were evidently less willing to do so for small quality differences. Over time, patients that travelled further from home were meanwhile increasingly travelling to other hospitals than the top-performing hospital.

3. Reflections on the key findings: Implications for quality, affordability and accessibility

In this section we reflect on the common goals of the Dutch health care system: quality, accessibility and affordability. Table 1, column 2, summarises the main findings with reference to the common goals. In column 3, we list some policy recommendations to be discussed in section 4.

Table 1. Key findings (section 3) and policy recommendations (section 4) with respect to quality, affordability and accessibility

	Key findings	Policy recommendations
Quality	*The role of quality in the purchasing market is minor but increasing, and further steps are desirable.*	Establish a uniform, and preferably compact, quality indicator set for the purpose of purchasing care.
	Insurers adopt various strategies to incorporate quality into health care purchasing.	
	Quality plays a small but increasing role in provider–payer contracting in the Netherlands.	
	Even though hospitals report on thousands of indicators, the usability of such indicators proves limited for the purpose of purchasing care.	
	The selective contracting of treatment procedures based on minimum volume norms has enhanced provider–provider collaboration.	
	Linking quality to the payment model (as in the AQC's global payment model with a two-sided shared-savings component dependent on quality) creates incentives for providers to improve quality.	
	American insurer Blue Cross Blue Shield (BCBS) has taken on a more facilitative role towards providers through services like providing benchmark data and organising seminars.	
Affordability	*It is rather difficult to rigorously manage affordability in an environment that is subject to uncertainty.*	Continue negotiating administrative outline agreements (BHAs).
	Contracts tend to set a maximum for the total amount to be reimbursed, often in the form of a global budget or lump-sum payment.	
	Payment models that shift more financial risk to providers may foster incentives for cost containment.	Keep policy changes to a minimum.
	It is difficult for an insurer to shift volume levels across providers (substitution of services), because that is usually at the expense of another provider's budget.	Transfer the task of purchasing care back from local authorities to health insurers.
	Reconciliations are sometimes inevitable in a changing market, but they diminish the effectiveness of global budgets or lump-sum payments.	
	In a system of managed competition, government continues to play a role in keeping the system affordable via administrative outline agreements.	Introduce minimum price differences between insurance product types.
Accessibility	*In terms of accessibility, the purchasing market performs rather well.*	Increase the minimum price difference between contracted care and non-contracted care.
	Almost all hospitals are being contracted, and the selective contracting of specific health conditions applies to a limited number of conditions.	
	Providers increasingly seek collaboration and attempts are made to concentrate services.	
	Patients with cataracts tend to engage health care providers close by, with 75% to 80% choosing a provider within 20 kilometres of home.	

3.1. Quality

3.1.1. Financial incentives

Currently, quality plays a minor but growing role in the purchasing of health care in the Netherlands. In contract design, that is apparent in provisions such as general agreements with respect to quality (such as protocols), entry conditions (eligibility for contracts), conditions for selectively contracting certain treatment procedures and the use of multiple-year contracts. The threat of selective contracting has exerted some pressure to keep quality and volume levels high, and as a result some providers are actively seeking opportunities to collaborate with other providers. In addition, some insurers have engaged providers to come up with their own list of quality indicators and to work on a project basis on improving quality of care.

Quality could play a greater role in contract design. Coupling financial consequences to quality indicators would be a major step forward that is worth considering. This is also seen in initiatives like the AQC [6], where the shared-savings component is linked to quality. In the AQC, quality is defined in 64 quality indicators that form one aggregated score. Although it is important to realise that not all aspects of the quality of care can be captured in 64 indicators, that does not mean one should abstain altogether from linking financial compensation to quality indicators. A fully comprehensive set of quality indicators would not be feasible, or even desirable, as the administrative burden to providers that would come with such extensive reporting would outweigh the benefits. A comprehensive set of indicators is therefore not the goal either, but we do want to aim for a quality indicator set that is fit for purpose.

In the process of composing and introducing such a set, we may want to consider the following. Even though many indicators that are currently being reported on are not considered suitable for the purchasing of health care, there are many others to choose from (an average hospital reports on a few thousand indicators). Choosing a suitable set should therefore be feasible. To create sufficient or widespread support from providers in adopting such a set, it might also help to compose a set collectively or to draw on indicators that have already been jointly established (the ZN standards are a good example of such an initiative). With respect to selecting a set of indicators, focusing on the disease burden and incorporating both process and outcome indicators are things to keep in mind. Lastly, it is important to realise that introducing a quality indicator set is also a process of learning by doing, in which some indicators may gradually turn out less suitable and be dropped whilst new ones are incorporated.

Another, more drastic, step forward would be to change to payment models such as global payments and bundled payments, in which groups of providers become responsible for the quality of care. Such models would replace current practices of individually contracting providers based on lump-sum payments or global budgets, as is now done for hospitals and behavioural health care providers. Changing the way

health care is delivered may, however, require heavy investments from the provider side. If insurers want to bring about this change, they may need to accommodate providers by offering long-term and more generous contracts, at least during the initial phase.

3.1.2. Non-financial incentives

As seen from the insurer BCBS's experiences with the AQC, non-financial incentives may also contribute to provider performance. Providing benchmark information, for example, helps providers to get a better grasp on where there is room to improve. Providing benchmark information is an important contribution that only the insurer can make in the system, as insurers have a unique position with respect to claims data. A step further would be to organise events in which providers come together to share knowledge about best practice; practitioners may learn about new ways to improve care based on experiences from their colleagues. Thus, rather than telling practitioners how to improve care, the insurer would take a much more facilitating approach, tapping into the intrinsic motivation of health care providers to improve care. Gradually, Dutch insurers seem to be adopting such an approach in efforts such as working with providers more closely in pilot projects designed to explore how to improve care together. Practice variation is increasingly being discussed as well.

In conclusion, it has not been easy to incorporate quality in the purchasing of health care, but progress has been made. Additional steps can be taken to stimulate quality via contract design, by linking (bonus) payments to quality scores, and by moving on to other payment model types in which providers simultaneously hold accountability for the quality of care and the budget. The potential impact that a health insurer can have goes beyond contract design alone. Providing benchmark information and opportunities for practitioners to learn about best practice may also help boost the quality of care.

3.2. Affordability

3.2.1. The difficulty of containing cost growth in a market with uncertainty

Government and insurers are both employing instruments to contain cost growth in health care. The government encourages joint responsibility for curbing health care costs in cooperation with insurers and with providers of specialist medical care, behavioural health care and primary care [7–10], who are to reach agreements on maximum growth rates for segments of care. Such agreements set national growth targets, but they do not specify how such targets might translate into growth targets for individual players. They thus leave room for some providers to grow or shrink at a faster pace than others.

Insurers pursue various strategies to steer on affordability as they purchase care. Some examples are contracting providers based on a global budget or lump-sum payment, reducing price variation, experimenting with new forms of payments, efforts to substitute care services, and provisions on prescribing drugs. To begin with, providers

are contracted mostly on the basis of global budgets or lump-sum payments, which put ceilings on the total amounts to be reimbursed. Some contracts explicitly refer to the growth percentages set out in the administrative outline agreement (*bestuurlijk hoofdlijnenakkoord* or BHA). Insurers also make efforts to reduce price variation so as to arrive at more market-consistent prices. They experiment with new forms of payment, such as shared savings. And they also create provisions with respect to care activities like prescribing drugs.

Although various strategies are attempted, managing affordability can be challenging in practice. Whereas an insurer may want to lower costs through substitution, an increase in the receiving provider's budget will be readily accepted, but a corresponding or larger cut in the other provider's budget may be rather daunting. And although most larger providers might agree on maximum reimbursements, reconciliations take take place if costs turn out higher than the negotiated total. Unanticipated policy changes, the introduction of new drugs and other events beyond the providers' control may have an impact on providers costs. Hence, reconciliations may sometimes be in place. That does, however, compromise the effectiveness of such payment models in keeping the system affordable.

Even though providers tend to be contracted based on global budgets or lump-sum payments, and even though administrative outline agreements have put clear maximum growth targets in place for specified segments of care, rigorously controlling such targets can present a challenge in practice, because there is considerable uncertainty. That does not mean such agreements do not help keep the system affordable. They do provide some sense of direction. Such effects were apparent in some health care contracts, which explicitly referred to the BHA maximum growth target. They were also evidenced in the Court of Audit (*Algemene Rekenkamer*) report that concluded that the administrative agreements had likely contributed to cost containment in the period 2012–2015 [11]. The existing uncertainty is basically a given in the health sector, and that will not be different in the future. Some uncertainty can be reduced by keeping the level of policy changes to a minimum, but the health care sector will always be subject to a degree of uncertainty. Some contracts now add provisions to accommodate potential market shifts, such as modifications in the maximum prices set by the Dutch Healthcare Authority, unforeseen hikes in volume or alterations in insured populations. Contracts are also increasingly stipulating courses of action in the event that unanticipated changes occur. Not everything can be anticipated, however, so contractual agreements will to some degree remain prone to ex-post customised solutions.

3.2.2. Introducing more risk to an already unpredictable environment: Waiting for the burning platform?

Payment models associated with higher levels of financial risk for providers may improve

the affordability of the system. Under such models, providers accept higher levels of accountability for performance (be it in terms of quality or efficiency). Introducing more risk to providers is not without risk, however. If risks are too high, good-quality providers could go bankrupt. Payers are nonetheless increasingly experimenting with newer types of payment models, such as bundled payments and global payments, which imply higher levels of risk for providers.

In the Netherlands, bundles of care are increasingly being implemented and experiments with shared savings are being launched, although on a lesser scale than in the United States (where it has been introduced in Medicare). The Dutch health insurance company Menzis and some 'pioneer sites' are now working with shared savings on a project basis [12, 13]. Payment models with even greater levels of risk (such as the global payments implemented in Massachusetts) have not been introduced in the Netherlands thus far. The burning platform in Massachusetts was perhaps higher than it is in the Netherlands, and a next step in payment experimentation may require a stronger trigger to bring about change.

3.3. Accessibility

3.3.1. Freedom of provider choice is highly valued and expensive, but we hardly make use of it

In the Netherlands, the freedom of patients to choose their doctor is highly valued. Even though insurers are allowed to contract health care providers selectively, they are required to sufficiently reimburse care from non-contracted providers so that it does not form a hindrance to accessing care (*hinderpaalcriterium*). Debates about reducing this reimbursement rate led to a proposal in 2014 to eliminate this hindrance criterion. Ultimately, the upper house of Parliament rejected the proposal, as some feared it would jeopardise the patients' freedom to choose their health care providers [14].

In practice, we have seen that certain other aspects of contract design could also affect the accessibility of care. Although most hospitals were contracted, they were not necessarily contracted for the entire spectrum of care. Providers were increasingly seeking collaboration, and attempts were being made to concentrate services. If treatment for a specific diagnosis had not been contracted at the hospital of choice, patients could be required to make copayments, although only a small number of diagnoses were affected and the level of co-payment remained relatively low. Some contracts included provisions requiring that care delivery be continued even after maximum reimbursable levels were reached (*doorleverplicht*). These might help to preclude an underprovision of care if reimbursement ceilings have been negotiated.

Though nearly all hospitals are contracted and much emphasis is put on safeguarding provider choice, we found that Dutch patients rarely make use of this privilege in practice. Several studies have shown that the majority of patients choose to attend hospitals that are relatively close by. Varkevisser and colleagues found that 72 and 46 per

cent, respectively, of non-emergency orthopaedic care and neurosurgery care patients went to the nearest hospital [15]. Similarly, we have shown in chapter 6 that roughly 75 to 80 per cent of patients with cataracts chose a hospital within 20 kilometres of home. This raises the question of whether we are paying too much for a privilege people seem to barely make use of.

In terms of the overall system goals in Dutch health care, we conclude that the purchasing market performs rather well in terms of care accessibility. The role of quality in the purchasing market is minor but growing, and further steps are needed. With regard to the affordability of care, the private market parties had some difficulty to rigorously manage health care costs in practice.

4. Regulating a system of managed competition

4.1. Managing Enthoven's theoretical model versus managing the Dutch system in practice

The Dutch health care system is based on Enthoven's theoretical model of managed competition. Enthoven defined the following set of players: a sponsor (an employer, government or purchasing cooperative), a health plan (covering both insurance and care provision) and the consumers. The sponsor assumes an important role in the system and has the following set of defined tasks: setting rules for equity (such as ensuring that everyone is covered and that no premium differentiation exists across individuals), managing the enrolment process (for example, giving insured persons the option to re-enrol elsewhere; providing information on the level of cover), creating price-elastic demand (such as making quality information accessible) and avoiding risk selection (for example providing standardised cover; analysing switching behaviour) [2].

The Dutch model is structured rather differently. The tasks of insurers overlap to some degree with those that Enthoven envisaged for the sponsor, while some other sponsor tasks are assumed by government. Insurers, for example, are subject to a duty of care and an acceptance obligation. Tasks such as creating a risk adjustment scheme have been taken on by government. In addition to the different set of players, another fundamental difference is that vertical integration does not exist in the Netherlands, and is indeed prohibited. Hence, rather than having competing comprehensive care organisations, the Dutch system has opted to have competing insurers and competing providers.

To regulate the market, the Netherlands has also chosen a different path. Against Enthoven's recommendation to not introduce government-imposed budget constraints on health care spending, the Netherlands has adopted expense caps for specialist medical care, behavioural health care and primary care. Enthoven argued that introducing such

caps could result in denial of care and that it would be difficult to hold onto such caps in practice [2]. In case government intervention were needed, he recommended instruments targeted at specific goals. The Dutch system is, however, not the only health care system based on managed competition that has opted for medical expense caps; the state of Massachusetts has also introduced such a cap [16].

Given that the Dutch system has been implemented differently from Enthoven's theoretical model, and because the Dutch system now works slightly differently to what was envisaged when managed competition was launched, it might now be time to take a second look at the Dutch government's role in the system. On the basis of our findings in this thesis about the performance and functioning of the current system, we shall now propose some specific considerations for managing the Dutch system in future.

4.2. Policy recommendations for the Dutch health care system

We would draw attention to some key considerations in policy design, providing suggestions for each of the declared system goals of quality, affordability and accessibility.

4.2.1. Quality

Facilitate development of a uniform, and preferably compact, quality indicator set for the purpose of health care purchasing.

Currently, as we have seen, the professional associations (*beroepsverenigingen*) in the Dutch health care sector have been developing indicators for specific fields of health care, such as cancer care [17] and emergency care [18], in addition to the ZN standards established jointly by insurers, providers and patients [19]. This is a step in the right direction, and extending such efforts across a broader spectrum of care would be desirable. The professional associations are, and will remain, responsible for the quality and the respective standards of care in a private system. However, should the market parties fail to extend such efforts to the broader spectrum, the government may need to step in to promote this by commissioning for example the National Health Care Institute (*Zorginstituut Nederland*) to take on that role. It could appoint a group of informal leaders (with authority) that operate across the entire spectrum of care to set up a uniform (and preferably compact) quality indicator set that covers a certain percentage of the disease burden.

4.2.2 Affordability

Consider continuing the administrative outline agreements.

The Dutch Court of Audit (*Algemene Rekenkamer*) has evaluated the impact of the administrative outline agreements on curtailing the rise in health care expenditures. It focused on the period 2012–2015 and concluded that the financial arrangements in the accords probably helped to lower expenditures during that period [20]. New agreements have been signed since then, for specialist medical care (for 2014–2017 and 2018) [4, 21], behavioural health care (for 2014–2017) [8] and primary care (for 2018) [10, 22].

The fact that the agreements have contributing to curbing cost growth in the past does not automatically mean they will do so in the future, as Erik Schut and his colleagues have argued [23]. Growing discontent with negative ramifications such as waiting lists and the quality of elder care may make ongoing cost growth reduction less likely. The authors also point out that the willingness to support the agreements was partially explained by the economic recession prevailing at the time. Despite that, new agreements have been signed. It is unclear how long the government should prolong that approach, but it does appear to maintain some pressure on the system.

Keep policy changes to a minimum.
Minimising policy changes would help increase transparency with respect to trends in health care volume, prices/costs. Although maintaining policy unchanged is not feasible in a changing and unpredictable world, it seems advisable to keep policy change to an absolute minimum. Every time a potential change is considered, we would recommend that a careful trade-off be made between the micro gain of the policy change and the macro loss of increased difficulty to detect trends in cost and volume data. If market parties are unable to detect such trends, that makes it more difficult for insurers to purchase care effectively in terms of costs and prices and for providers to identify room for improvement.

Assign the task of purchasing care from local authorities back to insurance companies.
We recommend shifting health care purchasing tasks from local councils back to insurers, in order to benefit from their greater experience and capacities. The purchasing of care is a difficult task that requires expertise, scale and time. Even insurers sometimes experience difficulty in getting innovation off the ground. In addition, insurers and local authorities have different organisational goals: whereas the insurers' interest is to keep costs down, local authority budgets tend to be based on last year's costs. The spending of one such market party may affect the spending of the other. That would warrant either combining the two parties or leaving care purchasing to one party. With cost containment high on the agenda, it appears that insurers would be more up to the task than are local health authorities.

Introduce a minimum price difference between insurance product types.
Dutch insurers offer different types of insurance products, but the uptake of insurance products that put restrictions on cover remains quite limited [24]. There are roughly three types of health care insurance products in the Netherlands: services-in-kind policies (*naturapolissen*), reimbursement policies (*restitutiepolissen*) and combination policies (*combinatiepolissen*). Under reimbursement policies, all the health care is paid for by the insurer; under services-in-kind policies, contracted care is fully reimbursed and the majority of expenses for non-contracted care are reimbursed [24]. Combination policies include features from both types. The uptake of products that restrict cover (in terms of either provider choice or reimbursement rates for non-contracted care)

has been rising, but it is still rather low – 13.1 per cent in 2017 [24]. To encourage uptake of such products, government could impose a minimum price difference between insurance products offering roughly the same cover but differing in the level of provider choice (as was done in Massachusetts [25]). A higher uptake of such policies could give insurers more leverage in negotiations with providers, thereby improving the affordability of the system.

4.2.3. Accessibility
Increase the minimum price difference between contracted and non-contracted care providers.
In the current purchasing market, accessibility of care appears to be high, but Dutch patients hardly make use of that privilege. Here lies a chance to reduce cost growth, as free choice comes at a price. Increasing the minimum price difference between contracted and non-contracted providers would make it more attractive for insurers to selectively contract providers. That would create more leverage for insurers in negotiations and thereby ultimately strengthen their ability to contain cost growth.

4.3. Trade-offs in system goals: A political choice
This section has provided several recommendations relating to the three system goals of quality, affordability and accessibility. (For an overview of the policy recommendations per system goal, see table 1, column 3.) Overall we can conclude that the accessibility of care in the purchasing market is rather high and that putting some limitations on accessibility would be in favour of the affordability of the system. In the end, though, how such trade-offs are made is a political choice.

5. Considerations for future research

Purchasing health care: A gamma science rather than a beta science
The findings in this thesis suggest that the purchasing of health care is not purely a beta science: it is a gamma science. In research, payment models have been addressed as rather technical affairs. Although a thorough understanding of different payment model types and corresponding incentives is highly valuable, research would also benefit from a better understanding of how such incentives translate into practice when contracts are incomplete. From interviews with providers and insurers about the purchasing of specialist medical care in the Netherlands, we found that prices at the product level were sometimes finalised after the contract period had already started, and that lump-sum or global-budget arrangements could be subject to reconciliations. This calls for a different approach to researching the impact of payment reforms on outcomes in health care. A combination of quantitative and qualitative methods, would be desirable.

Reconciliations are sometimes inevitable, and it is not always clear when to show leniency and when to be rigorous. If total costs exceed the negotiated amount, for

example, an insurer may choose to reconcile, and that may improve the relationship with the provider. In the long run, however, it may hamper the insurer's ability to contain cost growth. It is not always clear-cut how the benefits of investing in relationships will weigh up against the ability to contain future cost growth. More insights into what aspects an insurer should rigorously try to control and when to show leniency may help in finding a balance.

6. Limitations

This thesis is an attempt to gain more insights into the functioning of the health care purchasing market in the Netherlands. The system is relatively new, as regulated competition was introduced in 2006. Knowledge about regulated competition is still rather limited, because few countries have adopted similar systems in recent times. It appears that the Dutch system has not yet matured, making it difficult to draw long-term conclusions. Nonetheless, we hope our research has created better insights into the current functioning of the system, thus helping it to progress another step further.

Theoretically a lot is known about types of payment models and the associated incentives. However, a contract entails more than financial agreements, and such non-financial aspects also affect incentives. That complicates the analysis of incentives stemming from contract design. Due to the scarcity of research on contract design in practice, there was no clear format on how to analyse such contracts. We therefore built our own theoretical framework for contract analysis (chapter 2).

We have focused on the purchasing of specialist medical care and behavioural health care. That was a deliberate choice, as those two segments represent a large share of Dutch health care costs. We examined the types of contractual agreements in those segments in terms of quality and financial arrangements, and we analysed the process of purchasing care. Given that care segments tend to show variations in respects such as types of care and the size and number of providers in the market, the lessons we have drawn from the purchasing of specialist medical care and behavioural health care are not necessarily transferable to other care segments. The role that quality plays in the purchasing of care, or even the purchasing process itself, could be very different for primary care than for an area like specialist medical care.

Our research therefore had limitations that stemmed largely from our position at the front line of the functioning of a regulated health care system. At the same time, this relatively unexplored field granted us the opportunity to contribute to a better understanding of the functioning and potential of the Dutch health care system.

7. Concluding remarks

The aim of this thesis was to explore how the purchasing of health care can contribute to quality improvement, cost containment and accessibility in the Dutch health care system. That system is based on Enthoven's model of managed competition. We found that the Dutch health care system is not an exact replica of that model and that some assumptions made in the model are challenged by the findings in this thesis.

The Dutch purchasing market performs well when it comes to the accessibility of care, but with respect to quality and affordability it appears difficult for health insurers to assume a directive role. They have taken on a more facilitating role instead. It seems that, in the current system, aspects such as benchmark information and provider–provider and insurer–provider collaboration play important roles in the functioning of the system, where both quality and cost containment are high on the agenda. These are significant contributions an insurer can bring to the system, and they cannot be delivered by a government-based purchasing party. Government does, however, continue to play an important role in the system, maybe an even more important role than was foreseen when the system was introduced.

The Dutch managed competition system does not work as initially envisaged. After ten years of implementing managed competition, progress has been made, but the system has still not matured. It takes a lot of time for a health care system to converge into a well-functioning system, but we are on our way. A significant lesson that derives from this thesis is that more is possible within the current system, and that an optimally functioning system will go beyond getting the incentives right in contract design.

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Summary

Average per capita expenditure for health care has been rising in OECD countries in recent decades (2001–2014), although at varying paces [1]. The way in which health care providers are paid for their work is increasingly seen in many countries as a strategy to contain cost growth while creating incentives to improve the quality of care. Some countries have focused on engaging market forces and have implemented some form of regulated competition [2]. It was introduced in the Netherlands in 2006 in the form of three markets: the health care provision market, the health care purchasing market and the health care insurance market. This thesis investigates how the Dutch health care purchasing market can further the government-defined health system goals of quality, affordability and accessibility.

In **chapter 2** we analyse provider–payer contracts on the basis of economic contract theory, focusing in particular on the principal–agent theory, the transaction cost theory and the property rights approach. We define six contract characteristics based on those theories: the allocation of property rights, contract duration, incentive alignment, the degree of contract completeness, risk allocation and protective measures. This framework is then used to analyse provider–payer contracts concluded in 2012 for the provision of medical specialist care. It emerges that contract duration was relatively short, that quality played a minor role in contract design, and that contracts were relatively incomplete, leaving room to renegotiate during the course of the contract.

Chapter 3 explores how payers make trade-offs in provider-tailored contract design and the associated transaction costs in purchasing behavioural health care. The analysis is based on the insurers' purchasing strategies for behavioural health care and a selection of provider–payer contracts signed in 2014 and 2015. Variation in contract design is found to be largely explained by differences across payers, as opposed to differences across providers. Payers may, however, adopt differing contracting strategies vis-à-vis different groups of providers (based on attributes such as provider revenue levels, provider type and provider quality). This allowed for a degree of customised contract design at relatively low transaction costs. Negotiations could lead to further refinement of contract design. Here, too, payers might make trade-offs, deciding, for example, to not necessarily pursue face-to-face negotiations with all providers, but rather to focus on certain groups, such as those exceeding a certain revenue level.

Chapter 4 examines the role of health care insurers in the purchasing market. We analyse first the insurers' roles in a system of regulated competition based on Alain Enthoven's theoretical model of managed competition; we subsequently describe the insurers' statutory tasks as laid down in the Dutch Health Insurance Act. We then explore how insurers were fulfilling their role in practice by drawing on vision and mission statements of individual insurers and by conducting interviews with several insurers and hospitals. It emerges that the tasks assigned to the insurers in the Dutch system showed a degree of overlap with the tasks Enthoven had envisaged for the

sponsor. Although Dutch insurers performed well in fulfilling their statutory tasks, they experienced practical difficulties in meeting the expectations with respect to purchasing care based on price and quality. We conclude that insurers might need to be given more latitude and that the insurers' role might need to be reconsidered. In addition, the role of government in the Dutch system is probably greater than would be expected from the theoretical model, particularly in terms of facilitating target setting and putting pressure on the system.

In **chapter 5** we analyse the Alternative Quality Contract (AQC) developed by the insurance company Blue Cross Blue Shield of Massachusetts in the United States. The AQC is one of the foremost innovations with respect to provider–payer contracting in health care. Overall, AQC groups were associated with higher quality improvements and lower cost growth than non-AQC groups [3]. We identify the key drivers of its success and draw transferable lessons for implementing similar payment reforms in other settings. We show that providers under AQCs were able and willing to steer patients to high-quality, affordable providers. Lessons to be considered in implementing payment reforms are to start with generous, long-term contracts, to implement the reforms on a large scale, and to focus on getting the strongest providers on board first. Contextual factors such as the ability to define a population prospectively, required referral from a primary care provider, market structures, and legislation and regulations play further roles in the success of a payment reform.

In **chapter 6** we take a sidestep from the health care purchasing market to examine the Dutch health care provision market. We investigate the role played by quality in a patient's choice of a health care provider for cataract treatment in the period 2006–2011. More specifically, we test whether high-quality hospitals attracted more patients than other hospitals. We first estimate the impact that quality had on provider volume levels and then employ a mixed logit model to analyse how patients made trade-offs between quality, waiting times and distance from home. Results indicate that a one-point increase in quality was associated with a volume increase of two to four per cent. Quality was found to steer more patients to the top-quality provider in particular, whereas no large differences were seen in patients' choices amongst the remainder of providers (though patients did prefer the remaining hospitals over those classed in the lowest segment).

Chapter 7 discusses the key findings of this thesis, concluding that (1) the Dutch purchasing market performs particularly well in terms of accessibility; (2) the role of quality in the purchasing of care is limited but increasing; and (3) in practice it is rather difficult for insurers to contain cost growth in a changing environment. The insurers take on a somewhat different role than had been envisaged when the system reforms were implemented: a more facilitating role rather than a more directive one. As a consequence, insurers can be held less responsible for curbing expenditure growth.

It therefore appears that government, even under managed competition, has a key role to play in pressuring the system to maintain affordability and putting quality on the agenda. The Dutch government has indeed taken up those responsibilities. Hence, even though the reformed health care system does not function as envisaged, it still performs rather well and is heading in the right direction. The current system affords room for further progress. Purchasing health care entails more than just setting the right financial incentives in the design of provider–payer contracts.

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Samenvatting

In de OECD landen, zijn de gemiddelde kosten per capita in de afgelopen jaren gestegen (2001-2014), danwel op een variërend tempo [1]. De wijze waarop landen zorgaanbieders bekostigen wordt in toenemende mate gezien als een strategie om kosten te beteugelen en prikkels tot kwaliteitsverbetering te introduceren. Diverse landen zijn geïnteresseerd in het introduceren van marktwerking en hebben een vorm van marktwerking geïntroduceerd [2]. In 2006 werd in Nederland het model van gereguleerde concurrentie geïntroduceerd. Hiermee werden drie markten geïntroduceerd, de zorgverleningsmarkt, de zorginkoopmarkt, en de zorgverzekeringsmarkt. In dit proefschrift onderzoeken we hoe de zorginkoopmarkt in Nederland kan bijdragen aan de systeemdoelen (i.e. kwaliteit, betaalbaarheid en toegankelijkheid van de zorg).

In **hoofdstuk 2** hebben we inkoop contracten geanalyseerd op basis van economische contracttheorie, namelijk de principaal agent problematiek, de transactiekostentheorie en de eigendomsrechtentheorie. Op basis van deze theorieën zijn zes contract eigenschappen gedefinieerd. De contracteigenschappen zijn: de allocatie van eigendomsrechten, contractduur, afstemmen van belangen, mate van (on)volledigheid, risico verdeling, en beschermingsmaatregelingen. Vervolgens hebben we dit raamwerk gebruikt om de contracten voor medisch specialistische zorg in 2012 te analyseren. De contracten hebben een relatief korte contractduur, kwaliteit speelde een kleine rol in de contracten en de contracten waren relatief onvolledig met ruimte om te heronderhandelen gedurende het contractjaar.

In **hoofdstuk 3** onderzochten we hoe verzekeraars afwegingen maken in het bieden van maatwerk in de inkoopcontracten en de daarmee gepaard gaande transactiekosten bij de inkoop van de geestelijke gezondheidszorg (GGZ). Dit was gebaseerd op de GGZ inkoopdocumenten van de verzekeraars en een selectie van inkoopcontracten uit 2014 en 2015. Uit de analyse bleek dat de verschillen tussen de contracten voor een groot deel te verklaren waren door verschillen tussen verzekeraars in plaats van verschillen tussen aanbieders. Verzekeraars kunnen verschillende inkoopcontracten hanteren voor verschillende groepen aanbieders (gebaseerd op bijvoorbeeld het omzet niveau van de aanbieder, aanbieder type en de kwaliteit van de aanbieder), hetgeen een zekere mate van maatwerk biedt, tegen relatief lage transactiekosten. Onderhandelingen kunnen tot een verdere verfijning van het contract leiden. Ook hier maken verzekeraars afwegingen, waar een verzekeraar ervoor kan kiezen om niet met alle aanbieders face-to-face te onderhandelen, maar in plaats daarvan louter face-to-face onderhandelt met aanbieders boven een bepaald omzet niveau.

In **hoofdstuk 4** analyseerde we de rol van de verzekeraar binnen het gereguleerde concurrentie model op de inkoopmarkt. Eerst hebben we de rol van de zorgverzekeraar binnen een stelsel van gereguleerde concurrentie geanalyseerd op basis van het theoretische model van Enthoven en de taken zoals deze gedefinieerd zijn in de

Zorgverzekeringswet. Daarna bestuderen we hoe de verzekeraar zijn rol invult in de praktijk op basis van de visie/missie van de individuele verzekeraars, en interviews met diverse verzekeraars en ziekenhuizen. Op basis van deze analyse zien we dat de taken die de verzekeraars binnen het Nederlandse stelsel hebben toegewezen gekregen een zekere mate van overeenkomst hebben met de taken die Enthoven had neergelegd bij de sponsor. De Nederlandse verzekeraars vervullen de wettelijke taken goed, maar ondervinden praktische belemmeringen bij het invullen van de verwachtingen rondom het inkopen van zorg op basis van prijs/kwaliteit. Op basis hiervan concluderen we dat we de verzekeraars wellicht meer ruimte moeten geven en de rol van de verzekeraar moeten heroverwegen. Daarnaast speelt de overheid wellicht een grotere rol in het systeem dan verwacht op basis van het theoretische model, in de vorm van het stellen van concrete doelstellingen en het uitoefenen van druk.

In **hoofdstuk 5** hebben we het 'Alternative Quality Contract' (AQC) van de Amerikaanse verzekeraar Blue Cross Blue Shields (BCBS) bestudeerd. Het AQC is een van de grootste innovaties geweest op het gebied van inkoop in de zorg. De AQC groepen werden over het algemeen geassocieerd met grotere kwaliteitsverbeteringen en een lagere kosten groei dan de controle groep [3]. In dit hoofdstuk hebben we de succesfactoren van het AQC gedefinieerd en hebben we vervolgens lessen getrokken voor het implementeren van een soortgelijk model in andere settings. Hieruit bleek dat aanbieders onder het AQC zowel bereid als in staat waren om patiënten naar hoge kwaliteit en betaalbare aanbieders te verwijzen. Verder bleek dat het starten met genereuze en meerjarencontracten, het implementeren van de hervorming op grote schaal en het richten op de grote spelers in de beginfase lessen zijn bij het implementeren van een soortgelijke hervorming. Daarbij spelen contextuele factoren zoals het vooraf afbakenen van een populatie, het verplicht stellen van een verwijzing, de markt structuur en wet en regelgeving ook een rol in het succes van de hervorming.

In **hoofdstuk 6** nemen we een zijstap van de inkoopmarkt naar de zorgverleningsmarkt. In dit hoofdstuk bestuderen we in hoeverre de kwaliteit van zorg een rol speelt in de aanbieder keuze van een cataract patiënt in Nederland in de periode 2006-2011. Specifiek bestuderen we of hoog kwaliteit aanbieders significant meer patiënten aantrekken ten opzichte van andere aanbieders. Ten eerste testen we wat de impact is van kwaliteit op patiënten volumes (van de aanbieder), ten tweede gebruiken we een mixed logit model om in kaart te brengen hoe patiënten afwegingen maken met betrekking tot kwaliteit, wachttijden en afstand. Een kwaliteitstoename van 1 punt werd geassocieerd met een 2 tot 4 procent volume groei voor de aanbieder. Daarnaast vinden we dat patiënten met name gevoelig zijn voor hoge kwaliteit en dat verschillen tussen de resterende zorgaanbieders niet tot grote verschillen leiden wat betreft aanbieder keuze, al zijn ziekenhuizen die in het laagste spectrum vallen minder aantrekkelijk.

In **hoofdstuk 7** worden de hoofdbevindingen van dit proefschrift besproken. We concludeerden dat: a) de inkoopmarkt met name goed presteert op het gebied van toegankelijkheid van zorg; b) de rol van kwaliteit bij de inkoop van zorg is klein maar deze neemt wel toe; en c) het is niet eenvoudig voor een verzekeraar om de kosten te beteugelen in een veranderlijke omgeving. De verzekeraars nemen een andere rol in dan we met de introductie van de hervormingen hadden bedacht, in plaats van een rol als regisseur nemen de verzekeraars eerder een faciliterende rol in. Dit leidt ertoe dat verzekeraars in mindere mate verantwoordelijk gesteld kunnen worden voor het beteugelen van de kosten in de zorg. Het lijkt erop dat zelfs in een systeem van gereguleerde concurrentie de overheid daarom een belangrijke rol speelt in het uitoefenen van druk op het systeem om de betaalbaarheid te garanderen en kwaliteit op de agenda te zetten. De Nederlandse overheid heeft deze verantwoordelijkheden inderdaad op zich genomen. Het system werkt dus niet zoals we op voorhand bedacht hadden, maar het functioneert vrij goed en we gaan de goede kant op. We eindigen met de conclusie dat er binnen het stelsel nog ruimte is voor verdere verbetering, en dat de inkoop van zorg meer inhoud dat het goed zetten van financiële prikkels in een inkoopcontract.

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Dankwoord

Het voelt bijna onwerkelijk om dit dankwoord te schrijven. Een moment waar ik al een aantal jaar naartoe heb gewerkt en ineens is het dan echt af. Johan, ik weet nog goed dat ik je in 2013 benaderde met de vraag of je geïnteresseerd was in een proefschrift over marktwerking in de zorg. Het was een onderwerp dat mij zeer interesseerde en ik wilde mij graag in het onderzoek bekwamen. Naar aanleiding van ons gesprek hebben we een onderzoeksvoorstel uitgewerkt. Rudy en Jeroen haakten al snel aan en het team was compleet. Fijn dat jullie enthousiast waren over mijn voorstel en mij de kans hebben gegeven dit samen uit te werken.

Ik wil dit dankwoord dan ook beginnen met mijn promotieteam **Johan Polder**, **Jeroen Struijs**, en **Rudy Douven**. Jullie zijn gedurende het traject altijd erg betrokken geweest en daar ben ik jullie heel dankbaar voor. Ons team was samengesteld uit verschillende disciplines wat meerwaarde heeft gebracht en altijd tot inspirerende discussies heeft geleid. **Johan** bedankt voor het vertrouwen dat je altijd hebt gehad en je betrokkenheid. Fijn dat ik gebruik heb kunnen maken van jouw brede kennis en ervaring en grote netwerk om mijn proefschrift verder invulling te geven. **Jeroen**, veel dank voor de dagelijkse betrokkenheid je strategisch inzicht en je scherpe pen wat mijn schrijven naar een hoger niveau heeft getrokken. Dat heeft er ook toe geleid dat ik inmiddels veel plezier heb gekregen in het schrijven. **Rudy,** dank voor je inhoudelijke enthousiasme en kennis. Jeroen en Rudy, bedankt dat ik de gelegenheid heb gehad om tijdens jullie Harkness Fellowship aan Harvard University gedurende een periode mijn onderzoek te verrijken door diverse bezoeken af te leggen bij verzekeraars, zorgaanbieders, beleidsmakers en onderzoekers. Tevens veel dank dat jullie me ook in jullie gezinnen hebben verwelkomd. Dank aan het hele promotieteam voor deze gelegenheid om tijdens mijn verblijf in de VS mij ook verder te verdiepen in het verzekeringssysteem aldaar. Ik kijk hier nog steeds met veel plezier op terug.

Gedurende mijn poefschrift periode ben ik op meerdere plekken werkzaam geweest, Tilburg University (TiU), het Centraal Planbureau (CPB), het Rijksinstituut voor Volksgezondheid en Milieu (RIVM) en de Nederlandse Zorgautoriteit (NZa). Op die verschillende plekken ben ik altijd hartelijk ontvangen. Ik wil alle betrokkenen dan ook bedanken voor de collegialiteit.

Collega's van het CPB, dank voor de collegialiteit. **Mariëlle** jij was mijn kamergenoot op het CPB, bedankt voor de gezelligheid!

Ook mijn **collega's van het Centrum Voeding Preventie en Zorg (VPZ) van het RIVM** wil ik hierbij graag bedanken voor de gezelligheid. Ik wil hier in het bijzonder de mede PhDers en junior onderzoekers – **Manon, Claudia, Koen, Roy, Annerieke, Sander** en **Hester** - van VPZ noemen voor het kunnen delen van ervaringen rondom het schrijven van een proefschrift, de leuke maar ook wel de minder leuke aspecten van het traject. **Roy** bedankt voor het meedenken over de kaft van het boekje, **Anita** en **Koen** fijn dat ik met jullie de eindfase heb kunnen doorlopen. Jullie verdediging komt er snel aan, succes! En voor degenen die de eindsprint inmiddels in zijn gegaan, sterkte! Ook wil ik **Margot** bedanken voor de steun en betrokkenheid.

Ik wil graag alle **geïnterviewde** bedanken voor de tijd die ze hebben genomen voor mijn onderzoek. Ik heb veel geleerd van deze gesprekken. Het heeft ertoe geleid dat het onderwerp voor mij veel meer tot leven is gekomen en het heeft mij de kans gegeven om een vertaalslag te maken van theorie naar de praktijk.

Bij dezen wil ik ook graag de leescomissie, bestaande uit **Prof. dr. C.A. Baan, Prof. dr. A. Klink, Prof. dr. H.J.A.M. Maarse, Prof. dr. M.C. Mikkers, Prof. dr. ir. E.M. van Raaij, Prof. dr. E.F.T. Schut**, bedanken voor het beoordelen van het proefschrift.

Eline en **Sylvia,** fijn dat jullie vandaag mijn paranimfen willen zijn. Eline, ik weet nog dat Jeroen je aan mij voorstelde op je eerste werkdag. Ik heb het vanaf het begin altijd heel gezellig met je gevonden, maar wil je hierbij vooral bedanken voor de morele steun die ik soms nodig had. Sylvia, wij kennen elkaar al heel lang. Je hebt altijd veel betrokkenheid getoond in mijn werk en alles daaromheen en daar ben ik je heel dankbaar voor. Ik vind het dan ook heel fijn dat je er vandaag bij bent.

En tot slot wil ik mijn vrienden en familie bedanken voor alle steun die ik altijd heb mogen ontvangen. **Corné** en **Ingrid**, **Lotte** en **Bas** wat fijn om jullie zo dicht bij te hebben. **Pap** en **mam**, bedankt dat jullie er altijd voor mij zijn. En bedankt voor alle kansen die jullie mij hebben gegeven.

Curriculum Vitae

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